Applications close on 29 July 2005
Emergency Management Australia (EMA) is seeking applications for funding in financial year 2005/06 under the new Australian Government initiative “Working Together to Manage Emergencies”. Local governments and volunteer agencies are strongly encouraged to apply. The funding is available to support local governments, communities and volunteer agencies develop strategies to improve community safety, enhance training for volunteers involved in emergency management and promote community self-reliance.
EMA, the Australian Government’s lead agency with responsibility for reducing risks to communities and managing the consequences of disasters, is administering this four year initiative. Funding is available through a $13 million National Emergency Volunteer Support Fund.

Local Grants Scheme
The Local Grants Scheme will enhance the capability of communities to prepare for, respond to and recover from emergencies and disasters arising from any hazard. The Scheme provides funding to assist communities to develop and implement community emergency risk management initiatives, enhance protective measures for critical infrastructure, and provide emergency management and security awareness training for local government staff.

National Emergency Volunteer Support Fund
The National Emergency Volunteer Support Fund provides assistance for volunteer organisations to undertake projects to boost recruitment, retention and training of volunteers at the frontline of emergency management. This Fund recognises the significant role Australia’s national emergency services volunteer pool plays in assisting the community to respond to and recover from emergencies.

Consideration of Applications
Applications for both Programs will be assessed by the relevant State and Territory Selection Committee, involving extensive consultation through existing emergency management frameworks. Successful applications will be approved by the Australian Government Attorney-General, the Hon. Philip Ruddock MP, and announcement of the outcomes will be made by 30 November 2005.

HOW TO APPLY
Application forms are available from the EMA website at www.ema.gov.au/communitydevelopment or by contacting EMA’s Community Development Branch on: Email: communitydevelopment@ema.gov.au or Phone: 02 6256 4733, 02 6256 4734, 02 6256 4600 Fax: 02 6256 4653
At 12.42am on Monday February 13, 1978, a bomb exploded in the back of a garbage truck on George Street beside the Sydney Hilton Hotel. The bomb killed two garbage men and a policeman who was on guard duty outside the hotel where the leaders of 12 Asian and Pacific nations were staying for the Commonwealth Heads of Government Regional Meeting (CHOGRM).

The bomb resulted in blast damage nine meters up the wall of the Hilton Hotel and shattered glass along George Street and surrounding buildings. The two garbage men, William Favell and Alex Carter, died while loading rubbish into the back of their garbage truck much the same as any morning. The police officer, Paul Burmawrow, was also killed in the bomb blast.

It was purported that the target of the bombing incident was the then Prime Minister of India, Moraji Desai.

The Sydney Hilton bombing was the first terrorist type incident that Australia had ever experienced and so resulted in an express need for increased security forces and investigations to be undertaken.

The growth of political terrorist activities, such as the Sydney Hilton bombing, has lead to increased emphasis on counter terrorism measures in Australia and throughout the world.

Cover photo: Sydney – December 2002. Members of the anti terrorist unit are hosed down in the decontamination chamber during the New South Wales tactical operations unit mock counter-terror operation at a training facility.
The Australian Journal of Emergency Management

Vol 20, No 2, May 2005 ISSN: 1324 1540

PUBLISHER
The Australian Journal of Emergency Management is the official journal of Emergency Management Australia and is the nation’s most highly rated journal in its field. The purpose of the Journal is to build capacity in the emergency management industry in Australia. It provides access to information and knowledge for an active emergency management research community and practitioners of emergency management.

EDITOR-IN-CHIEF
David Templeman, Director General, Emergency Management Australia.

AJEM ADVISORY COMMITTEE
Christine Jenkinson, Emergency Management Australia
Roger Jones, TEM Consultants, Mt. Macedon
Chas Keys, former NSW State Emergency Service
Graham Dwyer, Department of Justice, Victoria
Cate Moore, Emergency Management Australia
Prof Jennifer McKay, University of South Australia
Graeme Nicholas, GSN Consulting, Queensland
David Parsons, Sydney Water Corporation
Michael Tarrant, Emergency Management Australia

PUBLISHER & EDITORIAL TEAM
Grey Worldwide Canberra
Manager, Mark Godfrey
Editor, Anita Cleaver
Sub-editor, Christine Belcher
Design and Typesetting by Grey Worldwide

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

COPYRIGHT
Material in The Australian Journal of Emergency Management is protected under the Commonwealth Copyright Act 1968. No material may be reproduced in part or in whole without written consent from the copyright holders. The views in this journal are not necessarily the views of Emergency Management Australia.

SUBMISSIONS & SUBSCRIPTIONS
The Australian Journal of Emergency Management welcomes submissions. Please contact us on ajem@ema.gov.au for a copy of our Contributors’ Guidelines. Articles for publication may be forwarded to:
The Australian Journal of Emergency Management
Main Road MT MACEDON VIC 3441
Tel. (02) 6295 3662
Email: ajem@ema.gov.au or fax 03 5421 5272
Or visit us online at www.ema.gov.au/ajem
For your free subscription contact us on the above email.

Contents

Vol 20 | No 2 | May 2005

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

FOREWORD Counter-terrorism in Australia 2

Chemical biological and radiological training – preparing for the unthinkable 4

Three short information pieces by Don Patterson, Assistant Director Special Capabilities Emergency, Management Australia

An introduction to radiological terrorism 9

Colella, Logan, McIntosh and Thomson discuss the issues involved in a radiological terrorist attack and consider some of the likely consequences

The Incident Response Regiment 18

Produced by the IRR in order to inform the wider emergency management community of the roles and responsibilities of the Incident Response Regiment

Involvement of health care providers in chemical, biological, radiological and other hazardous material incidents 21

Don Hodkinson outlines the special requirements of workers in hazardous materials emergency situations

A health perspective in a counter-terrorist environment 29

Provided by the Australian Government Department of Health and Ageing

Teaching for disaster mitigation in a time of terrorism: can the lessons from natural disasters be applied to the New World Order? 33

John Lidstone suggests a broader approach to education in light of the new terrorist-initiated environment

Developing internal and external emergency plans. Practical lessons from Royal Darwin Hospital 39

Joint submission by Carol Mirco, Manager, Nurses Board of the ACT and Dr Len Notaras, Medical Superintendent, Royal Darwin Hospital

Critical infrastructure protection and the role of emergency services 45

Mike Rothery, Assistant Secretary, Critical Infrastructure Protection Branch, Attorney-General’s Department

GUIDELINE FOR GRANTS 51

NOTES FROM THE FIELD 54

WEBSITE REVIEW 57

THE EMA PROJECTS PROGRAM REPORT 59

EMA UPDATE 61

CONFERENCE DIARY 67

BOOK REVIEW 70

INTERESTING WEBSITES Inside back cover
I welcome this opportunity to highlight key initiatives being undertaken by the Australian Government in addressing the threat of terrorism.

Terrorism presents us with a range of new and complex challenges. The threat is unpredictable and, for the most part, invisible, and clearly is not one which could be countered solely by traditional means. It requires a response that involves all levels of government, industry and the community. We continue to look for innovative ways to meet this new threat.

Since the 11 September 2001 terrorist attacks, the Australian Government has systematically reviewed the critical components of Australia’s protection against terrorism and has established a national strategic framework to counter-terrorism based on the principles of:

- **maximum preparedness** – strong ability to detect and disrupt terrorist activity;
- **comprehensive prevention** – strong protection of people, assets and infrastructure from terrorist activity; and
- **effective response** – rapid and effective capabilities to reduce the impact of a terrorist incident, should one occur.

The Australian Government has committed $5.6 billion in additional funds to Australia’s national security efforts since the terrorist attacks of 2001. Funding has been provided for enhanced intelligence, aviation and maritime transport security, strengthened law enforcement and border control and science and technology research in areas relevant to combating terrorism. New measures have been introduced to manage chemical, biological and radiological incidents.
and law enforcement, emergency management and defence capabilities have been strengthened.

The primary co-ordinating body for dealing with counter-terrorism in Australia is the National Counter-Terrorism Committee (NCTC). In 2002, its mandate was expanded to include managing the consequences of terrorist activity. I co-chair the Committee together with a State or Territory senior official. The NCTC comprises senior representatives from key agencies, including EMA, all premiers’ and chief ministers’ departments and the deputy police commissioners from each State and Territory. Senior New Zealand government officials attend as observers.

Key functions of the NCTC include providing strategic and policy advice to heads of government and relevant ministers, co-ordinating an effective nation-wide counter-terrorism capability, and maintaining effective cross-jurisdictional arrangements for sharing relevant intelligence information between all relevant agencies in all jurisdictions. In addition the NCTC maintains an overarching national strategy to co-ordinate the protection of critical infrastructure and maintains the National Counter-Terrorism Plan.

The National Counter-Terrorism Plan provides a whole of government framework for responding to terrorist incidents. The Plan outlines the responsibilities, authorities and mechanisms to prevent, or if they occur, manage acts of terrorism and their consequences in Australia. The Plan relies on strong co-operative, co-ordinated and consultative relationships among Commonwealth and State and Territory government departments and agencies.

Over recent years the relationship between counter-terrorism and emergency management has become closely aligned. There are a range of issues where the NCTC and the Australian Emergency Management Committee (AEMC) both have a direct interest—most notably in the areas of urban search and rescue and chemical, biological and radiological incidents. Discussions are currently underway on arrangements for strengthening the link between the NCTC and the AEMC.

Australia’s national counter-terrorism exercise programme has been expanded and strengthened. The exercises are designed to test the operational responses to major terrorist incidents as well as the critical decision-making processes that deal with these events. Planning for the next multi-jurisdictional exercise, Mercury 05 is already underway. It will draw on recently conducted exercises and will rigorously test Australia’s consequence management capabilities.

There is no room for complacency as the terrorist threat continues to evolve. We need to continually review our arrangements, minimise unnecessary duplication of effort and be able to respond quickly and flexibly to emerging threats and challenges.

The ability of agencies involved in counter-terrorism and emergency management to work effectively together will ultimately determine the success in providing a more secure Australia.
Chemical biological and radiological training—preparing for the unthinkable

Three short information pieces by Don Patterson,
Assistant Director Special Capabilities, Emergency Management Australia

1. The early days

Chemical Biological and Radiological (CBR) training is a fundamental element in the development of a CBR capability. The tragedy of the 1995 Tokyo Sarin gas incident demonstrated the potential for mass casualties when CBR materials are effectively disseminated.

In Australia, the Sydney 2000 Olympic Games provided the impetus for the development of training for emergency services to respond to deliberate Chemical Biological and Radiological incidents. In 1997, a small working group, including representatives from police, fire, ambulance, and health organisations were sponsored by EMA to review CBR training requirements and to develop a package that could be delivered to ‘First Response’ agencies. It was evident from the beginning that the training required a multi-agency focus. Training materials were taken from a number of sources including the United States Domestic Preparedness Program and the Australian Defence Force.

In 1997, a small working group, including representatives from police, fire, ambulance, and health organisations were sponsored by EMA to review CBR training requirements and to develop a package that could be delivered to ‘First Response’ agencies. It was evident from the beginning that the training required a multi-agency focus. Training materials were taken from a number of sources including the United States Domestic Preparedness Program and the Australian Defence Force.

The possibility of a deliberate incident involving CBR materials during the 2000 Olympics could not be ruled out. The development of capacity to effectively respond to such incidents grew in the years leading up to the Games. This included the need to train a large number of emergency service personnel who would be the ‘first responders’ to a deliberate CBR incident.

The requirement initially was to train up to 300 first responder personnel for the Games. A four day course was initially developed with six courses delivered at the Army’s School of Military Engineering at Casula in western Sydney.

While the focus was clearly on Sydney, other Olympic venue cities included Brisbane, Melbourne, Canberra and Adelaide. These cities were involved in improving their CBR response arrangements.

Demand for the courses continued to grow and in early 2000, CBR training was moved to EMA’s training facility at Mount Macedon, Victoria. Courses were open to all States and Territories with the priority on Olympic venue states.

The present

Following the 2000 Olympic Games the frequency of CBR training was reduced to one course each year, however this quickly changed following the events of 11 September 2001. CBR training returned and continues to be in high demand.

The main course is Management of CBR Incidents and Emergencies and is for middle management personnel who could find themselves supervising the response to a CBR incident. The four and half day course has a very full program with the first day and a half devoted to theory. The third day takes a more practical, hands on approach with participants donning protective clothing, undergoing a mask confidence test and then experiencing a decontamination through a decontamination facility provided by the ADF’s Incident Response Regiment. The final day and a half focuses on decision exercises and syndicate discussions to consolidate each participant’s knowledge.

Additional courses have been developed for Health Aspect of CBR, CBR Crime Scene Investigation, and Radiation Detection Instruments. Students are provided with a comprehensive package of training materials including video, publications and CDs enabling them to further develop CBR packages for their particular agency.

Training has also been conducted on equipment provide through the Australian Government sponsored CBR Enhancement Program.

The future

States and Territories are now in a better position to develop their own training packages to meet their specific requirements. It is envisaged that States and Territories will deliver CBR training in their own jurisdiction from mid 2005.

EMA has commenced integration of CBR material into Emergency Planning and Emergency Operation Centre courses delivered at Mount Macedon as well as extension courses in the States and Territories.
CBR training continues to evolve as new techniques are developed and new challenges emerge. Some may argue that a CBR incident may never occur. Let’s hope it never does, but if it does, we must be prepared—training is the key.

2. Equipping the ‘First Responder’

First responders at the scene of deliberate CBR incidents are confronted with a number of life threatening challenges requiring quick assessment to save lives and relieve suffering. Unless properly equipped they may find themselves part of the problem.

Responders require a range of specialised equipment to enable them to carry out their tasks. The need for specialised equipment was considered in detail immediately following 11 September 2001, when it was decided Australia needed to equip its first responders to effectively respond to a CBR incident.

Following agreement by the Australian Federal Cabinet, EMA developed the CBR Enhancement Program (CBREP) with funding of $17.8 million over a four year term. The CBREP is designed to provide a basic CBR response capability for each of Australia’s capital cities with equipment being sourced and delivered to the State and Territories.

A small project team was established to facilitate delivery of the equipment following the principles:

- equipment was to be standardised nationally, facilitating interoperability;
- equipment was to be commercial off the shelf;
- States and Territories were provided with generally the same amount of equipment; and
- where possible, equipment should also be similar to that used by the Australian Defence Force.

The acquisition program covered six key equipment areas:

- Detection Equipment
- Personal Protective Equipment
- Mass Decontamination
- Casualty Extraction
- Medical Pharmaceutical
- CBR Support

Funds were also set aside to assist the States and Territories with equipment maintenance and for CBR training.

Equipment deliveries were largely completed in November 2004 with the majority of the equipment being centralised for use in capital cities. States and Territories have completed training on the use of equipment and are now refining their operational procedures for its use in conjunction with their CBR plans. The CBREP builds...
Radiation Instruments Training – Students practice area survey methods using CDV radiation instruments

upon existing State/Territory arrangements to respond to deliberate CBR incidents and is seen as a significant boost to Australia’s overall CBR response capability.

3. The National Chemical Biological and Radiological Working Group

The Tokyo Sarin incident of March 1995 was a wake up call to emergency managers around the globe. What had been considered a remote possibility was now a chilling reality. The deliberate use of highly toxic chemical materials on an unsuspecting population was a new issue that now confronted emergency planners.

In Australia, following a workshop held at the Emergency Management Australia Institute at Mt Macedon in August 1995, a working party was established to examine the issue in more detail and make recommendations on what measures should be taken to improve the national preparedness for similar incidents.

The Olympic Games provided additional impetus to improve preparedness to respond to chemical, biological and radiological (CBR) incidents.

A CBR sub-working party was established as part of the Olympic security framework to develop capabilities to respond to CBR incidents that could occur during the Games. The main focus was on developing CBR response capabilities in Sydney, including other Olympic venues. During the lead up to the Games a number of measures were implemented that improved the capacity to respond.

Following the Games, it was decided that a national CBR forum should be established to build on the work done for the Games. The National CBR Working Group sponsored by EMA was established and held its first meeting on 6–7 August 2001.

The working group membership comprised the chairs of the respective State and Territory CBR committees, as well as Australian agencies that have a key role to play during a CBR incident. The working group reports to the Australian Emergency Management Committee. The terms of reference of the national CBR working group include:

- **Purpose:** To co-ordinate development of national CBR capabilities in Australia.
- **Objectives** are to:
  - Develop procedures and arrangements for dealing with a CBR incident.
  - Provide guidance on the acquisition of CBR related equipment.
  - Provide guidance on the development of CBR training and exercises.
  - Co-ordinate State and Territory initiatives relating to CBR.

The working group represents the interests of a number of committees and working groups that also have interests in CBR, as shown by the diagram in Figure 1.

The working group normally meets twice each year and has focused on the development of State and Territory CBR capabilities including CBR plans, arrangements and training. Most States and Territories have developed state level CBR plans and CBR training is provided to emergency services personnel at EMA, at Mount Macedon, Victoria.
Consultative Arrangements

State Emergency Management Committee

AEMC → CMG (AUSCANUKUS) → NCBRWG → Working parties as required → STATE CBR COMMITTEES

Reporting

Consultative Arrangements Diagram:

- AEMC
- CMG (AUSCANUKUS)
- NCBRWG
- State Emergency Management Committee
- AHD-MPC
- CDNA
- PHLN
- NCTC (csc)
- AFAC
- CAA
- DVI
- SETU
- Water Industry

Figure 1 Notes:

AFAC Australasian Fire Authorities Council

AHD-MPC Australia Health Disaster Management Policy Committee

AUSCANUKUS Australia, Canada, United Kingdom, United States

CAA Convention of Ambulance Authorities

CMG Consequence Management Group

CDNA Communicable Disease Network Australia

DVI Disaster Victim Identification

NCTC (csc) National Counter-Terrorism Committee (Capability Sub Committee)

PHLN Public Health Laboratory Network

SETU Science Engineering and Technology Unit

CBR Crime Scene Investigation – Students prepare to record a contaminated crime scene
One of the key outcomes for the working group was the development of procedures for handling suspicious packages in 2001. The anthrax letters in the USA were the catalyst for the rash of white powder incidents in Australia that began in mid October 2001.

The procedures provided a useful basis for response agencies to further develop their protocols. White powder incidents still occur; however, State and Territories are much better prepared, having refined their filtering and assessment procedures in determining the most appropriate response.

Development of national co-ordination arrangements for CBR incidents ranks high on the working group's agenda. Issues now facing the national working group include development of a working group strategy that will require endorsement from all the States and Territories and continued development of CBR training and State and Territory CBR response capabilities. As concern for the potential deliberate use of CBR incidents increases, the work undertaken by the working group is growing in importance and will be of benefit to all States and Territories.
An introduction to radiological terrorism

Colella, Logan, McIntosh and Thomson discuss the issues involved in a radiological terrorist attack and consider some of the likely consequences

Abstract

Unthinkable as terrorist events may seem, the unprecedented attacks of September 11 2001 have underlined that attacks by well-organised terrorist networks are difficult to predict and can have devastating consequences. Moreover, the recent images of the Australian embassy bombing in Jakarta (2004) and the Sari club explosion in Bali, Indonesia (2002) have confirmed that Australia cannot consider itself immune from terrorism. While most terrorist organisations continue to use conventional weaponry, there are significant concerns that some groups are attempting to acquire radioactive materials for malevolent purposes.

Disturbingly, organisations have attempted to acquire nuclear materials, which are radioactive materials that can be used to fabricate a nuclear weapon, in the recent past. In the early 1990s Aum Shinrikyo, the cult responsible for the Sarin gas attacks in Tokyo 1995, met with ex-Soviet nuclear specialists and expressed an interest in acquiring a nuclear device (Mutalik et al., 1996). Al Qaeda has also sought to acquire such materials, with their efforts dating back as far as 1993 (Bunn, 2002). Although there have been no recorded terrorist incidents involving nuclear materials, there is significant information indicating that nuclear materials are being trafficked for potential sale on the black market. In 1994 alone, 6.2g of weapons-grade plutonium-239 was seized in Tengen, Germany; 363g of plutonium-239 was intercepted at Munich Airport, Germany; 2.7kg of highly enriched uranium was seized in Prague; and 2.9kg of highly enriched uranium was seized in St. Petersburg, Russia (IAEA NewsCenter article, 2003). While these individual quantities are not considered sufficient to create a basic ‘critical mass’ nuclear weapon, the fact that such items are being intercepted is of great concern to the international community.

Non-nuclear radioactive materials are not capable of being used to create a nuclear explosion. However, these materials do have the potential to be used as weapons either in the form of a radiological dispersal device (RDD) or a radiation emission device (RED). The use of an RDD or an RED is considered by many to be the most likely terrorist scenario because many radioisotopes are used widely in medicine, industry and science, and therefore accessible to the criminal element (Ferguson et al., 2003).

An RDD is a device that disperses radioactive material into the environment, resulting in radioactive contamination. This contamination would present a significant health hazard to the general public. An RED utilises a radioactive source to expose potential victims to radiation. The source is placed or concealed in a location where it can deliver a radiation dose to a target, and may go undetected for a long period of time. While the use of either an RDD or an RED is considered the most plausible terrorist act, the general consensus is that such actions would result in a small number of immediate deaths (IAEA Press Release 2002). The benefit to terrorists using such a device lies in the disruption such a device is likely to cause, for example, hysteria from the general public and significant anxiety from people who think they may have been exposed to radiation (Granot, 2000). In the case of an RDD, the contamination resulting from such a device is likely to take a considerable period of time to clean up, resulting in long-term evacuation of the area, which is likely to have significant economic impact.

While no recorded terrorist incidents involving nuclear materials have ever been reported, there have been incidents involving non-nuclear radioactive materials. In 1995, Chechen rebels alerted the international media to a canister of radioactive material strategically placed in Ismailovski Park in Moscow, which they threatened to detonate (González, 2001). The canister was found to have contained radioactive cesium-137. A second incident in 1998 involved a container of undisclosed radioactive materials attached to a mine found next to a railway line near Argun in Chechnya (Edwards, 2004). In both cases the devices were not detonated and were safely recovered. Closer to home, a quantity of cesium-137 was recovered in Thailand in 2003 (Andreoni et al., 2003). While the amount of material was small and not linked to any potential terrorist activity, the fact that it was recovered in the South-East Asian region is a reminder that Australia’s geographical isolation is no reason for complacency.
These examples highlight the threat posed by illegally trafficked radiological materials to both international and national security. This paper endeavours to address some of the issues involved in a radiological terrorist attack, in particular the use of non-nuclear radioactive materials, and will touch on some of the likely consequences and hazards involved.

Radioactive materials

What are radioactive materials? Radioactive materials contain unstable atoms that undergo spontaneous disintegration. This process of radioactive decay is accompanied by the emission of radiation, which is measured by a unit called the Becquerel (Bq). Radiation can be classified into four groups: alpha (α), beta (β), neutrons, and gamma (γ) radiation, each of which has different physical properties. The type of radiation emitted by a material will depend on the type of atoms (isotopes) present (see Table 1).

Alpha radiation consists of positively charged particles whose energy can easily be deposited within the surrounding environment. Therefore, α radiation is absorbed by materials such as paper or human skin. This means that α radiation external to the body poses a limited radiation hazard. However, α emitting materials are much more hazardous if ingested (e.g. inhaled or eaten) because all the energy from the radiation will be absorbed in a localised area of tissue (Martin & Harbison, 1996).

Neutrons, β, and γ radiation are more penetrating than α radiation, allowing the radiation to penetrate the body and interact with biological cells. Therefore, they present a greater external radiation hazard. Within occupational environments, this hazard is reduced by the use of appropriate shielding materials. Shielding materials that absorb radiation are placed between the radioactive materials and workers. The shielding of β radiation can be achieved by the use of perspex or aluminium. The use of dense shielding materials such as lead for β radiation should be avoided, because their use can result in the production of X-ray (Bremsstrahlung) radiation. The shielding material most suitable for neutrons is water or concrete, while γ radiation is typically shielded by the use of lead, water or concrete (see Figure 1).
Care must be taken when considering appropriate shielding materials, as many radioactive materials can emit more than one type of radiation.

The penetrating properties of β, neutrons, and γ radiation enable them to be detected relatively easily using commercially available equipment. The ability to detect and measure α radiation is hampered by the fact that α radiation is readily absorbed by air (NHMRC, 1995). This means that α radiation can only be detected at very short distances from the material, making direct detection in the field more difficult. Fortunately, many α emitting materials also produce γ radiation which can be used to detect and identify the radioactive material.

Radiation and its effect on the human body
The prime reason for measuring radiation is to monitor an individual’s actual or potential radiation exposure. The effect on humans due to exposure to radiation is primarily dependent on the effective dose a person receives. The unit most commonly used to measure the normalised effect of radiation in biological materials is the Sievert (Sv) (for more details see Martin & Harbison, 1996; IAEA Publication, 2004).

Radiation is not only produced from man-made processes, it is present (albeit at low levels) in the environment and in many of the materials we use and consume. On average, each Australian will receive a yearly dose from background radiation of approximately 2 milliSieverts (mSv), depending on the local surrounding environment and daily living patterns (Uranium Information Centre, 2004).

Exposure to radiation ultimately results in some of the radiation being absorbed by the body. The absorbed radiation results in the formation of charged particles. These charged particles can cause, at a cellular level, a number of chemical reactions to occur, which ultimately may result in the attack of biological material. The end result is that some of these interactions will result in the death or permanent modification of individual cells.

Ultimately, as a human is exposed to higher doses of radiation more cells are likely to die. Eventually a threshold is reached which results in reduced organ function. Effects observed above this threshold are deterministic and result in acute radiation syndrome (ARS), more commonly known as radiation sickness (CDC, 2003).

The first symptoms of ARS are nausea, vomiting, and diarrhoea. A list of likely deterministic effects is shown in Table 2 (Martin & Harbison, 1996; NOHSC, 1995). The chance of survival for people with ARS decreases with increasing radiation doses. The cause of death in the most severe cases is due to severe gastrointestinal and haematological (bone marrow) damage, which results in infections and internal bleeding (CDC, 2003).

When a human is exposed to low doses of radiation, latent health effects such as tumours, may result from permanent modification to cells. These effects are stochastic in nature. The study of radiation health effects has been conducted over many years and the information collected has been used to shape the current guidelines used by organisations such as the International Commission on Radiological Protection (ICRP) and the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) (example ICRP, 2004). From this information, limits for exposure have been derived. The annual limits for public and occupational exposures to ionising radiation (above background) set by the Australian National Occupational Health & Safety Commission are 1 mSv and 20 mSv, respectively (NOHSC: Report 1013, 2002).

The use of radiological material for malevolent purposes
Responsibility for securing nuclear assets (e.g. power reactors, reprocessing plants and repositories) ultimately rests with the individual countries that own such facilities. However, the international efforts of the United Nations through the International Atomic Energy Agency (IAEA) have resulted in the development of co-ordinated programs to assist members to properly account for their radioactive materials, while also providing support for programs aimed at countering the systemic problem of the illicit trafficking of nuclear material and equipment (IAEA Annual Reports).

While a terrorist attack using a nuclear device is unlikely, it obviously has the most severe potential
to cause extensive damage. The aftermath of such a detonation would result in mass destruction and a large number of casualties. Furthermore, such an attack would render the area uninhabitable for a long period of time (Bunn, 2002; Levi & Kelly, 2002). The economic and sociological impacts would be devastating, while leaving survivors with a lasting psychological and emotional legacy.

Non-nuclear radiological terrorism is undoubtedly the more credible threat, given the large number of radioactive sources accessible in the public domain. Radioactive materials are used in the community for a variety of purposes including blood irradiators, tumour treatment, industrial radiography, diagnostic imaging, and moisture gauges. The wide use of these materials creates opportunities for radioactive sources to be ‘orphaned’. An orphaned source is one that has been lost or stolen. Although only a few of those orphaned sources would be suitable for malevolent use, it may only take one to create an effective RDD or RED.

Prior to September 11, the emphasis of regulation on the security of radioactive sources was primarily based on limiting the use of such sources by unqualified staff or the general public and securing sources from being pilfered by persons seeking scrap metal for resale or similar (IAEA TECDOC Series No. 1355, 2003 and IAEA, CODEOC, 2004). In response to the heightened security fears, many States have acted to review current procedures and protocols in order to account for the new threat that comes from terrorists seeking to cause radiation exposure or to disperse radioactive materials (IAEA TECDOC Series No. 1355, 2003).

Radioactive sources have the potential to be used malevolently in a variety of ways. For example, a RED may be hidden and used to expose the public to radiation. Another means of exposing the public to radiation would be to disperse the material using a RDD. Passive dispersion would involve simply leaving the radioactive substance exposed to the elements and allowing it to silently disperse over time. The radiation exposure to an individual would be difficult to assess and would depend on factors such as the time spent near the contamination, the amount of material ingested, the chemical and physical nature of the material and the activity of the source.

Other RDDs may incorporate mechanical or chemical methods, such as explosives, to volatilise and distribute radioactive dust. This is likely to result in widespread external and possibly, internal contamination through ingestion of the material. Where an explosive device has been used, immediate death is likely to be caused primarily by the explosion. For those individuals in the direct vicinity of the release, the effective dose a person receives will again be difficult to assess. The general consensus of experts is that the detonation of such a device is unlikely to cause a great number of short-term deaths from radiological causes (IAEA Press Release, 2002).

Unless radioactive materials have been ingested, once an area is evacuated and the affected individuals are decontaminated, there is no risk of further exposure. However, the ingestion of radioactive materials would create a much more complicated scenario, where the dose received will be dependent on the success of medical intervention and the period of time the material remains in the body. The chemical effects of the materials must also be considered, as many radioactive materials are also chemically harmful.

While it is generally considered that the number of immediate deaths from RDD devices is likely to be small, a well-executed radiological attack on an unprotected population would necessitate costly environmental cleanup, societal disruptions, potentially significant economic costs, and tremendous psychological trauma to those affected (Mutalik et al., 1996). For these reasons, the use of radioactive material for terrorist purposes could be considered as a ‘weapon of mass disruption’.
Incident response: what to expect?

It is fortunate that no large scale terrorist act has been perpetrated using radioactive materials. However, this means that our understanding of such events is purely limited to hypothetical scenarios. From the large body of work published, it is clear that many consider the most probable terrorist assault would involve an RDD or ‘dirty bomb’ scenario.

While this may indeed be the case, it should not be viewed as the only possible route of attack. Clearly, there appears to be an assumption that terrorists will choose the easiest route in conducting an attack. Events such as September 11 highlight that this is not necessarily the case. Organisations such as Al Qaeda are willing to recruit specialists, train individuals, and invest time and money to achieve their goals. Therefore, it is imperative that government agencies and the research community consider all scenarios when planning and preparing for a radiological incident.

Our best understanding of the possible consequences of a radiological dispersion device incident comes from the results of accident situations. One of the most referenced cases is the incident that occurred in Gioânia, Brazil in September of 1987. Although this incident was not malevolent in nature, it highlights the difficulties involved with the release of highly radioactive material into the environment (IAEA, 1988).

In this incident, scrap yard workers released cesium-137 from an abandoned teletherapy (radiotherapy) machine that had at one time belonged to a cancer treatment clinic. The workers had no knowledge of its dangerous contents. The teletherapy head consisted of 93 grams of highly soluble cesium-137 chloride salt, sealed inside two stainless steel capsules, in turn sealed with an international standard capsule, which had standardised dimensions common to most teletherapy units. The workers removed the assembly containing the two stainless steel capsules and took it home to dismantle. The rupture of these capsules and the ensuing dispersal of radioactive material triggered the second largest radioactive accident after Chernobyl (Drielak, 2004).

The cesium-137 chloride powder appeared as an attractive luminous blue powder, thought to be fluorescence due to moisture absorbed by the source (IAEA, 1988). Both adults and children, believing the powder to be harmless, rubbed the substance into their skin, and at least one child ingested the powder. Over the next few days, some of these people starting displaying symptoms of ARS. Seven days later, the child was diagnosed with ARS.

The cesium-137 released into the general population produced a large amount of radioactive contamination. The magnitude of this incident was overwhelming for the national authority, and emergency assistance from the international community though the International Atomic Energy Agency (IAEA) was requested. The relief effort was massive. A stadium was designated where people who were thought to be contaminated could be diagnosed and receive medical attention. Twenty people were diagnosed as having deterministic effects and were admitted to hospital. The most serious cases were treated with Prussian Blue, a chemical which assists in the removal of cesium from internally contaminated patients. Full body radiation monitoring was set up to provide ongoing information to medics about the levels of internal contamination in patients. Blood, urine and faecal samples were taken daily and used to monitor patients. In total, 112,000 people were monitored and 249 people were found to have been contaminated (IAEA, 1988). Of the 249 contaminated, 129 people exhibited both internal and external contamination.

Forty nine of these patients were admitted to hospital, 20 of these needing intensive medical care. Among these patients, ten were deemed to be in a critical condition. Within a period of one month, four people died from the incident and one patient had an arm amputated. The surviving patients were discharged after treatment and are under continued medical supervision.

A major environmental survey of Gioânia and the surrounding area was also conducted. Forty two houses were demolished, and contaminated dust and soil were removed from the area. The clean-up took six months to complete, and waste from the incident totalled 3500 m³. There were significant psychological effects from the incident. For example, 74 per cent of residents had presented for full body monitoring, even though many could not have been contaminated. These people – the “worried well” – had a significant impact on the ability of medical staff to identify contaminated patients. There were also considerable economic effects, a 25 per cent downturn in the sale of Gioânia’s produce resulted, and 10 per cent of the town’s residents were affected economically by the tragedy (IAEA, 1988).

A team of experts reviewing the facts of this case made several key recommendations. The first, and undoubtedly one of the most important, related to ensuring that there were strict regulations regarding the discharging of responsibility for radioactive sources. The team also saw the need for better communication between the relevant agencies to ensure the objectives of regulatory control were being achieved. Furthermore, when regulating the use of these materials there should be due consideration of the physical and chemical properties of the source, not just the activity of the material.

Medically, the incident highlighted the need for specialist staff, such as health physicists and medical staff, to be available to respond to such an incident. The complexity in dealing with persons exposed to radiation requires medical staff with experience in a variety of areas.
such as haematological, immuno-suppression, and chemotherapeutic procedures and therapies.

The environmental issues relating to a radiological incident are as relevant today as they were in 1987. There are significant costs associated with cleaning up a contaminated site. These costs manifest in both the actual cost of the clean up and the cost associated with the closure of a city (or even part of a city). Prior to any incident, intervention levels need to be established to determine the level to which a site must be decontaminated to ensure it is safe. The question “how clean is clean?” needs to be addressed so that effective strategies can be developed.

**Dirty bomb scenario**

Figure 2 shows the effects of a simulated radiological dispersal device detonated outside of Central Station in Sydney. This scenario was modelled using the Hotspot™ modelling code (HOTSPOT, version 2.05, 2003). The code was applied to model the ground contamination resulting from the detonation of an americium-241 industrial gauge source (40 GBq activity) with 1kg of TNT and a wind speed and direction of 1 meter per second in a northerly direction. Figure 2 details the predicted 50-Year Committed Effective Dose Equivalent (CEDE) in sieverts received by an individual remaining at a specific location during the radioactive material release. The red represents a CEDE greater than 10 mSv, the green represents a CEDE of greater than 5 mSv, and the blue represents CEDE of greater than 1 mSv. These figures represent the sum of the committed dose equivalents to various organs within the body.

The resultant ground contamination that results from the dispersion of radioactive material is detailed in Figure 3. Here the Ground Contamination Levels (GCL) are detailed in three zones. The red zone represents GCL of greater than 100 kBq per m², the green represents GCL of greater than 10kBq per m², and the blue represents GCL of greater than 1 kBq per m². Areas up to 1.7 kilometres downwind from the explosion would contain contamination levels of at least 1 kBq/m². These values can be employed to estimate the effective dose people coming into the incident scene (after the plume has dissipated) will receive from ground contamination (IAEA TECDOC 1162, ARPANSA, 2002). Therefore, contamination levels of 1 kBq/m² would result in a maximum lifetime dose (over 50 years) of approximately 7 mSv (ARPANSA, 2002). Preventative measures taken immediately after an incident would likely result in even lower values.

The long-term effects this type of RDD event would have on the population of Sydney is difficult to assess. While the health risks associated with the dispersal of the material are likely to be small, there would probably be significant disruption due to public fear and anxiety (Granot, 2000). Following this, there would be a need to evacuate areas of the city to allow surveying and decontamination. It is likely that the cleanup would take several months. This would result in significant impacts, both financially and socially, on Sydney residents. The same issues faced by the Brazilian government during the Góiania incident would undoubtedly be encountered in this scenario, but on a much larger scale.
Sources of greatest concern

Australia classifies radioactive sources based on the risk they pose to health in accordance with an International Atomic Energy Agency (IAEA) technical document (IAEA TECDOC 1344, 2003). This document primarily categorises sources in terms of the A/D ratio, that is the activity of the source (A) and the level at which a source is deemed to be dangerous (D). The resulting ratio is used to group the source into five categories; category 1 being the most dangerous. At present there is no separate international classification system to categorise materials according to the potential for malevolent use. However, parameters to consider for such a system would include those spelt out in IAEA TECDOC 1344 plus issues related to source dispersability, portability, and the potential for theft (e.g. accessibility and quantity required).

Table 1 details the results of a recent report commissioned by the Monterey Institute of International Studies to determine the radioactive materials that pose the greatest risk to public health and safety, focusing on the potential consequences of their malevolent use (Ferguson et al., 2003).

The number of sources in use worldwide is unknown. Estimates from a recent US Government Accounting Office (GAO) survey of 49 countries reported a total of approximately 7.8 million sealed sources in use within their countries (US GAO, 2003). While most of these sources would be low risk, it is unclear as to the number of Category 1 to Category 3 (i.e. more dangerous) sources that are incorporated in these figures. Domestically, Australia has approximately 550 Category 1 (significantly dangerous) sources and approximately 10,000 Category 2 and 3 registered sources (Loy, 2003), which would make an effective RDD.

In spite of comprehensive global government regulatory control of radioactive sources, many are still reported abandoned, lost or stolen worldwide annually. Industrial sources may be at particular risk of loss or theft, given the need to transport these materials to and from construction sites (O’Neil, 1997). According to the IAEA, orphan sources are a widespread phenomenon. Of the 49 countries surveyed by the GAO, 39 countries indicated that orphan sources were a concern in their country (US GAO, 2003). Survey respondents reported that 612 sources had been lost or stolen since 1995. Of the 612 reported orphan sources, 254 had not yet been recovered. From a regional perspective, Asian respondents reported that 93 sources had been reported lost/stolen, of which 11 had been recovered. In the South Pacific, 44 sources had been reported lost/stolen, with 21 recovered. Unfortunately, information on category type was not reported.

Since 1993, there have been 540 confirmed cases (as detailed in Table 3) of illicit trafficking of nuclear and radioactive materials registered on the IAEA illicit trafficking database (IAEA NewsCenter article, 2003). The IAEA believe that this figure represents a conservative estimate of the true figure, with growing concerns that more sophisticated and organised trafficking in nuclear material may be occurring undetected (Cameron, 2002).

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear material</td>
<td>182</td>
</tr>
<tr>
<td>Other radioactive material</td>
<td>300</td>
</tr>
<tr>
<td>Both nuclear and other radioactive material</td>
<td>23</td>
</tr>
<tr>
<td>Radioactively contaminated material</td>
<td>30</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
</tbody>
</table>

These figures illustrate the need for comprehensive programs worldwide to both secure existing sources and to recover lost, discarded or stolen sources. Furthermore, these figures illustrate the potential threat of orphaned sources falling into the wrong hands.

It must be noted that Australian regulatory controls of radioactive and nuclear materials are wide-ranging. Each State and Territory’s responsible agency manages...
radioactive source licensing. Where sources fall under federal jurisdiction, the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is responsible. The Australian Safeguards and Non-Proliferation Office (ASNO) regulate and account for all nuclear materials and items subject to IAEA safeguards within Australia. ASNO is also responsible for the physical protection of nuclear materials within Australia (ASNO Annual Report, 2003).

Conclusion—preparing for the unthinkable

The public hysteria associated with radioactive materials and the potential disruption that may accompany the malevolent use of a radioactive source (Granot, 2000), makes the acquisition of radioactive material very attractive to terrorists. It is widely accepted that effective strategies such as providing radiological training to customs, emergency services, and medical personnel, and educating the community about the real hazards and appropriate protective measures required, will minimise the consequences of a radiological attack. Furthermore, increased research and development in areas such as new radiation detectors, radiological modelling computer software, effective decontamination techniques, forensic science techniques for radiological materials, and bio-dosimetry technologies that would lead to more effective response capabilities and casualty management, should be encouraged. Ultimately, the best line of defence is to limit opportunities for terrorists to obtain or import dangerous radioactive materials. Measures such as improving the world-wide security of radioactive materials through education, international co-operation, treaties and legislative means, and ensuring adequate regulatory regimes for radioactive sources are adopted, will clearly go a long way to achieving this goal.

References

ARPANSA (2002), Intervention in Emergency Situations Involving Radiation Exposure, Consultation Draft
HOTSPOT version 2.05, (2003), Lawrence Livermore National Laboratory. see www.llnl.gov/nat/technologies/hotspot
IAEA Annual Reports http://www-iaea.org/Publications/Reports/
IAEA NewsCenter (2003), http://www-iaea.org/NewsCenter/Features/RadSources/PDF/itdb_31122003.pdf
IAEA (2004), Radiation, People and the Environment, publisher IAEA. see http://www-iaea.org/Publications/Booklets/RadPeopleEnv/radiation_booklet.html

Authors
Mike Colella is a nuclear materials chemist attached to the National and International Safeguards and Security Research at the Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW.
Stuart Thomson is the project manager of National and International Safeguards and Security Research at the Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW.
Steven Macintosh is currently Acting Director of Government and Public Affairs at the Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW.
Mike Logan is co-ordinator for Response Advice to Chemical Emergencies (RACE) located in the Queensland Fire and Rescue Service.
The Incident Response Regiment

This article was produced by the IRR in order to inform the wider emergency management community of the roles and responsibilities of the Incident Response Regiment

The Incident Response Regiment was created in 2002 as part of the Australian Government’s plan to meet the evolving terrorism threat and to enhance the Australian Defence Force (ADF) counter-terrorism capabilities. The Regiment is a unit of Special Operations Command contributing to a national approach to detecting, deterring, responding and managing any terrorist incident.

The Incident Response Regiment comprises command and logistic support elements, two specialist organisations, and its headquarters. The specialist organisations have key capabilities in conventional emergency response and enhance chemical, biological, radiological and improvised explosives hazard reduction. In accordance with Australia’s treaty obligations, the Regiment contributes to the ADF’s ability to conduct domestic security and off-shore operations.

The role of the Incident Response Regiment is to provide specialist response to incidents involving chemical, biological and radiological (CBR) and/or explosive hazards, including other hazardous material and situations including fire.

The Incident Response Regiment can trace its development history to the Army Fire Service and a number of specialist Royal Australian Engineer organisations. The Australian Army has responded to incidents involving fire since World War I with an explosive ordnance disposal capacity has been maintained and enhanced since World War II. During the 1980s, the School of Military Engineering developed Army’s chemical and biological response ability, incorporating a limited ability to respond to terrorist actions involving toxic chemicals.

**Emergency Response Squadron**

The Emergency Response Squadron was raised from the Army Fire Service in 1999 as a result of the inquiry into the June 1996 Blackhawk helicopter tragedy. The tragedy highlighted the need for land forces to be supported by an emergency response capability. While the Emergency Response Squadron traces its lineage from the Army Firefighting Service, it has greatly expanded beyond firefighting operations. The Squadron now provides Army with a mobile and flexible emergency response capacity. Soldiers in the Squadron are trained firefighters, with specialist skills in crash and urban search and rescue. The fire fighters are able to perform their tasks in a contaminated environment.

Medics conducting decontamination of team members before dispatch to triage

The Squadron has detachments in Darwin, Sydney, Townsville and Oakey providing emergency response and rescue support to land forces.

**Chemical Biological Radiological Response Squadron**

In the 1980s, the School of Military Engineering formed the Chemical Radiological Response Team. The team’s role involved the training of Navy, Army and Air Force personnel in nuclear, chemical and biological defence and, where required, limited response to domestic incidents. The intent was to respond to incidents involving World War II chemical munitions. During the 1990s the Chemical Radiological Response Team developed a limited ability to respond to terrorist actions involving toxic chemicals.

In June 1998 the National Security Cabinet Committee approved the establishment of a specialist response capacity. The decision involved the foundation of the Chemical, Biological and Radiological Response Squadron.

Worldwide trends highlight the potential threat from terrorists using chemical or biological weapons. Security planning for the 2000 Sydney Olympic Games identified a need to increase the ability to respond to counter-terrorist activities especially involving complex CBR and improvised explosive device threats. The Chemical Radiological Response Team responsibilities were consequently transferred to the newly raised Joint Incident Response Unit.

**Joint Incident Response Unit**

The Joint Incident Response Unit was established in 2000 as a component of the ADF commitment to the Sydney 2000 Olympic Games. The Joint Incident Response Unit incorporated the chemical, biological and radiological response squadron and technical specialist search and explosive ordnance disposal (for improvised and conventional explosive devices). The Unit’s capabilities were employed as a component of the Sydney 2000 games inter-governmental bomb management and response plan. At the peak of the operational tempo the Joint Incident Response Unit totalled 501 defence personnel. The ADF elements were directly supported by a large scientific contingent from Australia, the United Kingdom, and the United States of America. The Joint Incident Response Unit ceased operational support to the Sydney Olympic Games in 2000.
November 2000 and was formally disbanded by March 2001. The subsequent long-term defence solution for response, high risk search and CBRN defence was achieved by forming the Chemical, Biological and Radiological Response Squadron.

**Incident Response Unit**

The terrorist attacks in the United States on 11 September 2001 gave rise to the Prime Minister announcing an enhanced CBRN defence capacity within the ADF to counter the threat of “weapons of mass effect”. This announcement resulted in the creation of the Incident Response Unit (IRU). The creation of the IRU identified an opportunity to unite under one command the existing emergency response and chemical, biological and radiological response teams. During the IRU tenure further development plans were raised for a permanent chemical, biological, radiological, nuclear and explosive response capability.

**Incident Response Regiment**

In May 2002 the Australian Government announced the formation of the Incident Response Regiment as a direct-command unit of Land Command Engineers. Given the Regiment’s unique capacity and skills it was subsequently allocated to the Special Operations Command.

The Incident Response Regiment maintains a high degree of readiness, training and motivation. The Regiment is frequently involved in operations and training in direct support of Special Operations Command activities in Australia and offshore. The Regiment continues to interact and exercise with Federal and State agencies and is building co-operation with regional neighbours. The Regiment has about 300 personnel with strong representations from scientific personnel, Army Engineers, Signallers and Logisticians.
Involvement of health care providers in chemical, biological, radiological and other hazardous material incidents

Don Hodkinson provides an overview of hazardous material response and outlines special considerations for health care workers in these emergency situations

Abstract
This paper aims to address the issues faced by health care providers when confronted by a chemical, biological, radiological (CBR) incident, or other hazardous material (HAZMAT) incident. A CBR incident, in reality, is nothing other than a specific type of hazardous material event. However it is not without its own unique challenges. The field of CBR incident response is an extremely complex one consisting of many problems, both obvious and subtle. It is a field of expertise that is infrequently needed and therefore rarely tested to verify accuracy and efficacy. It is for this very reason that the inherent problems posed by this complex issue are able to elude those with insufficient training, poor comprehension of relevant issues and most importantly, any actual practical experience operating in these hostile environments. It is paramount that all personnel involved in CBR/HAZMAT incident response be fully conversant with each other's roles and responsibilities, if potentially costly and dangerous mishaps are to be avoided.

Introduction
Hazardous materials are substances or materials, in any quantity or form, which pose an unreasonable risk to the health and safety of people and property. There are a number of types of hazardous materials such as explosives, compressed gasses, flammables, oxidisers, corrosive material and radioactive material. This article will primarily focus on:

a. Chemical – these may range from simple everyday industrial chemicals such as chlorine, ammonia, sulphuric acid and hydrochloric acid, through to chemical weapons such as nerve agents, blister agents, blood poisoning (cell toxicants) agents, and lung damaging (choking) agents (Topfer 1998).

b. Biological – these can be bacteria (causing anthrax, plague), virus (ebola, marburg, smallpox), rickettsia (causing Q fever, typhus), toxins (botulinum, Staphylococcus enterotoxin B) and cytotoxins (ricin, tricothecene mycotoxins) (Topfer 1998; Sidell, Patrick & Dashill 1998).

c. Radiological – there are essentially two types of radiation. Non-ionising radiation, which has enough energy to move atoms in a molecule around but not change them chemically; and ionising radiation, which has enough energy to actually break chemical bonds leading to DNA changes. Of these two, ionising radiation is of particular concern, consisting of alpha particles, beta particles, gamma rays and x-rays (USA – EPA).

It is imperative that health care providers responding to chemical, biological, radiological and other hazardous material incidents are fully conversant with their responsibilities and actions in these environments. The role of the health care provider must be clear and well defined. Goals and expectations must be achievable, especially given the limitations placed on them by both the environment they are working in and the personal protective equipment (PPE) they are required to wear. Appropriate and workable policies and procedures must be in place. Suitably trained and practiced health care providers must be available to participate in these events if and when they arise.

The threat
Despite the “Convention on the Prohibition of the Development, Production, Stockpiling and use of Chemical Weapons and on their Destruction” (Chemical Weapons Convention for short) of 1997, the 1972 Biological Weapons Convention (Australia is a signatory to both), and the various nuclear disarmament treaties, incidents occurring from the use of weapons of ‘mass destruction’ continue to remain a threat.

In Japan between 1994 and 1995, the Aum Supreme Truth Cult used chemical weapons on a number of occasions, resulting in the deaths of dozens of people and seriously injuring hundreds of others.
Evidence points to this Sect developing and testing the efficacy of these chemicals on a property in Western Australia some years earlier. Evidence also suggests that the Sect was heavily involved in developing both biological and nuclear weapons (Kaplan & Marshall 1996).

More recently, following the terrorist attacks on the World Trade Centre and the Pentagon in 2001, biological agents (specifically Bacillus anthracis) were used. This biological agent along with other imitation products has been disseminated on a number of occasions around the world, including within several Australian States. It is widely believed that there are still several countries that continue to develop and stockpile both biological and chemical weapons. Much discussion has also taken place, as recently as January 2005, regarding the so-called 'dirty nuclear bomb', its development and potential use by terrorist organisations.

Apart from the use of these weapons of 'mass destruction' by terrorist organisations and some individual countries, one should not forget about the occurrence of industrial accidents, which may release these chemicals, their precursors, or other hazardous materials into the environment. Accidents have occurred at chemical, biological, nuclear and other industrial facilities on a number of occasions including Sverdlovsk, former Soviet Union 1979 (Alibek 1999); Three Mile Island, USA 1979; Bhopal, India 1984; Chernobyl, Ukraine 1986; Coode Island, Melbourne 1991; Esso Longford, Melbourne 1998 and the recent rail accidents in Neyshabur, Iran and Ryongchon, North Korea. Unfortunately, incidents such as these still continue to occur.

The events of September 11 2001 and the terrorist activities following have raised the profile of CBR and drawn attention to the increased risk of CBR and other related hazardous material incidents. With this in mind, authorities Australia-wide have reacted to ensure that their response to these events, should they occur in their regions, are well prepared for. However, in undertaking this preparedness it is imperative that relevant authorities consider a wide variety of scenarios. They should conduct objective practical trials to prove the worth and efficacy of their response programs and act diligently to address identified shortfalls.

**Detection and monitoring**

The most important aspect of any good response team is being able to recognise or detect that a hazardous agent has been released into the atmosphere. Detection can be performed by any number of methods ranging from simply smelling odours through to the use of highly technical, hazard specific equipment. Obviously smelling odours is not a safe or acceptable method for the detection of toxicants in an environment. It is mandatory to use appropriate detection equipment in any suspected toxic environment (Raza 1998).

Suitably trained and qualified personnel must undertake this task.

Detection and monitoring is conducted to establish the nature and concentration of the toxicant present, the results of which, along with other considerations dictates:

- the types and level of PPE required;
- allows permissible exposure limits to be set; and
- assists in determining the safe working boundaries.

Biological and radiological materials are not so easily detected or monitored. It is imperative that hazardous material exposure be kept in mind as a differential diagnosis in any 'mass casualty' incident where many people present with a similar clinical picture, provides a first indicator that a hazardous incident has occurred. The best way to achieve this is to ensure that health care providers take a thorough and concise history from all casualties. This history may reveal such things as similar time of onset of symptoms between casualties, same route to work, same office building or work-site (Jagminus & Erdman 2001).

**Personal protective equipment (PPE)**

Personal protective equipment refers to the equipment used to protect personnel from a hazardous substance. This equipment includes respiratory equipment, various types of suits, garments, gowns, gloves, boots and over-boots. The type of PPE required depends on the type of incident, be it chemical, biological or radiological. It also depends on the method of dispersal of this substance (droplet, aerosol, vapour), the mode of entry into the body (inhalation, dermal absorption or ingestion), and the concentration of the hazardous agent in the atmosphere, which may lead to immediate danger to life and health (IDLH) environments.

There are numerous methods used to describe the levels and types of PPE ensembles. These definitions vary between countries, organisations, military and civilian institutions. The United States Occupational Safety and Health Administration (OSHA) and US, EPA regulations classify PPE as follows:

**Level A** – consists of Self Contained Breathing Apparatus (SCBA) or Supplied Air Respirator (SAR) with escape cylinder in combination with a fully encapsulating chemical protective suit capable of maintaining a positive air pressure. It includes both outer and inner chemical resistant gloves, chemical resistant steel-capped boots and two-way radio communications. This level affords the highest level of protection for skin, eyes and the respiratory system.

**Level B** – consists of either SCBA or SAR respiratory system, with hooded chemical resistant clothing, inner and outer chemical resistant gloves, chemical
resistant steel-capped boots and other items as deemed necessary. This does not include a positive pressure suit. This ensemble is worn when the type and concentration of the hazardous substance has been identified and has been determined that the hazard requires a high level of respiratory protection, but a lesser level of skin protection. This level of protection is generally suitable for personnel working in the Warm Zone, performing patient care and decontamination.

**Level C** – The dermal protection is the same as that worn in Level B, however respiratory protection is less. A full or half-face Powered Air-Purifying Respirator (PAPR) or Air-Purifying Respirator (APR) is worn. This level should be used when the hazardous substance has been identified, the concentrations measured and a determination made that this type of respirator is deemed appropriate to remove the contaminants. Level C is much easier to work in as it negates the use of the SCBA. Furthermore, the heat load is less, leading to lower incidents of heat stress.

**Potential limitations of PPE**

Health care providers must be aware that they have a number of limitations placed on them while working in the Warm Zone wearing PPE. These limitations severely impact on the medical care they are able to provide. They must work without compromising their own safety. There are examples of health care providers (and other rescue personnel) becoming casualties through either errors in judgement, poor training, poor discipline, herosics or just plain foolhardy actions. To this end, health care providers and rescue personnel must ensure they are wearing the appropriate PPE prior to entering a hazardous site, and the seal of both their respirator and protective clothing is never breached for any reason, until fully decontaminated.

---

**Detection/monitoring for contamination at Hotline using AP2C monitor**

There are a number of constraints placed on an individual when wearing PPE (Arnold & Lavonas 2001). These include:

- **Decreases dexterity and tactile senses** – motor skills in general are restricted, with fine motor skills near impossible to perform accurately (i.e. inserting an intravenous cannula, taking a pulse or blood pressure).
- **Increased weight and decreased mobility** – moving around in general is more difficult when dressed in full PPE, appreciably more so if SCBA is also worn.
Impairs vision – visual fields are significantly decreased. Simple tasks such as looking for chest expansion or moving around obstacles is more difficult.

Impairs hearing – hoods that cover head and ears lead to difficulty in hearing, which is exacerbated when fully encapsulated suits are worn. The noise associated with SCBA air supplies or even when breathing through simple High Efficiency Particulate Air (HEPA) filters detracts from other audible sounds (i.e. listening for patient breathing with the ear only is compromised and using stethoscopes is impossible).

Places a greater burden of heat stress on the wearer – the materials that PPE are made from are either permeable (double thickness charcoal impregnated suits), or impermeable (made from impervious materials which for obvious reasons do not breath readily) thus increasing the heat stress experienced by the wearer. Other issues like workload with large numbers of casualties, the stress of working in the hazardous environment, and inability to replace fluids as frequently as usual add to and complicate the issue of heat stress.

Psychological stress (especially encapsulated suits) – may lead to claustrophobia on behalf of the wearer, unless properly trained and practiced in wearing the equipment. Claustrophobia may be a personal trait, which no amount of training can mitigate. This will not be recognised until too late if prior training and experience in wearing these suits has not occurred. Simple everyday jobs become much more difficult with more complex jobs near impossible to perform. Furthermore, casualties may experience a degree of psychological stress seeing people moving around wearing these suits.

Limited oxygen availability – Self Contained Breathing Apparatus (SCBA) contains a specific quantity of air, the exact amount depending upon the type of system being used. A typical SCBA has a working duration of between 20–50 minutes depending on the capacity and number of cylinders being used, the type of work performed and the fitness of the wearer. Personnel operating in SCBA must also be aware that they need to have sufficient air remaining in their tanks to allow them enough time to pass through the decontamination process. This process will vary depending on the contaminant, concentration, number of people involved and decontamination procedures. It is imperative that there are personnel designated to monitor each person wearing SCBA.

Communicating with others – full-face respirators and fully encapsulating suits hinder communication appreciably. Tasks such as obtaining patient history and eliciting patient complaints can be significantly compromised.

Potential hazards associated with PPE

Wearing PPE does not come without its own unique hazards (Arnold & Lavonas 2001; Dubey 1998). These include:

Penetration – a process where the chemical flows through openings, seams, holes or voids in the protective suit. Positive pressure suits reduce the risk of penetration.

Permeation – implies that the hazardous gases or liquids diffuse through, on a molecular level, the pores of the material (protective barriers). Permeation depends on the properties of the garment and the concentration of the chemical. Permeation is measured in “breakthrough time” (BTT).
Incorrect use – all PPE must fit correctly and wearer confidence must be obtained prior to the use of this equipment in any hazardous environment. Masks should be tested using quantitative fit testing (i.e. M41 Protection Assessment Test Instrument), as opposed to qualitative fit testing (i.e. Isoamyl Acetate or CS gas). It should be noted that mask fit factors will deteriorate significantly with as little as a day old beard stubble (Ivarsson, Nilsson & Santesson 1992). Non-powered Air Purifying Respirators provide little protection to personnel who have full beards. Positive pressure respirators provide the best level of protection to workers in hazardous chemical environments, but not without their associated limitations.

Degradation – over a period of time contact and concentration of hazardous chemical degradation can occur, which modifies the structural characteristics of the PPE, thus allowing penetration and permeation to occur.

Contamination – individuals, when removing their PPE may inadvertently contaminate their underlying skin from contaminant remaining on the outside of their suits (cross contamination) if not thoroughly decontaminated prior to their removal or if the removal process is not correctly performed.

The site boundaries
There are a number of ways chemical hazard boundaries are described. These are:

- Black and White areas;
- Dirty and Clean sides—with the hotline being the dividing line;
- Exclusion, Contamination reduction and Support zones; and
- Hot, Warm and Cold zones.

In this article I concentrate on the later – Hot Zone, Warm Zone and Cold Zone.

The precise ways decontamination sites are established are vast and varied with each individual organisation choosing a specific layout that meets its specific requirements. The intricacies related to the exact layout of decontamination sites are not discussed in this article. This is usually not the responsibility of the health care provider, but rather—in most instances, that of the fire department.

The guiding principle and cardinal rule of operating in hazardous environments must not be disputed and that is: “expose the absolute minimum number of personnel to the minimum quantity of hazardous agent, for the absolute minimum period of time” (Dubey 1998).

The hazardous materials (HAZMAT) plan describes a three-tier system of setting out boundaries adjacent to the incident site (Sidell, Patrick & Dashiell 1998).

Hot Zone – this area extends for about 100 metres upwind/uphill of the incident and 1,000 metres downwind/downhill of the incident (distances quoted are variable, and dependant upon many criteria). Only rescue and explosive ordnance demolition (EOD) personnel should enter this zone. Medical personnel should never enter this zone. Training or directing medical personnel to enter this area is inappropriate, as toxic/hazardous environments are not the place to be attempting to provide any level of medical care. It is crucial that casualties be evacuated by appropriately trained rescue personnel from the Hot Zone back to the Warm Zone, where medical care can be provided in a more suitable and safer environment. By doing this, the risk of further exposure to the casualty and chance of injury to both the rescuer and health care provider is greatly reduced.

All equipment and vehicles are considered contaminated once in this zone. Entry to and exit from this area is through specific entry/exit points which are strictly monitored. All personnel entering this area wear full PPE appropriate to the incident or hazard. Level A ensemble should be initially instigated and may be modified once the results of detection and monitoring are known.
**Warm Zone** – this area extends upwind from the Hot Zone for a distance of 5–20 metres depending on numbers of personnel working in the area and the number of expected casualties. Rescue, decontamination team members and medical first response/triage personnel staff this area. All personnel wear full PPE appropriate to the hazard—usually Level B or C ensemble. Entry and exit is via designated entry control points.

Initial triage of casualties takes place in this area. Casualties are sent to either the immediate care area for life/limb threatening injuries, the delayed care area for stable but non-ambulatory conditions, and the ambulatory care area for ambulatory patients. The issue of contamination and the fact that health care providers are wearing PPE significantly impedes the level of medical care they are able to provide in this zone. This level of care may be considered as being relatively rudimentary. Usually treatment consists of nothing more than that which is absolutely necessary to enable the casualty to survive through the decontamination process and out into the Cold Zone i.e. immediate life saving measures appropriate to the cause of the injury/contamination such as simple first aid procedures, antidote treatment for poisoning by nerve agents—autoinjectors, nitrates for cyanide poisoning, airway control via atropinisation/suction, and oxygen therapy/ventilation.

During the decontamination process all dressings and medical materials must be changed for non-contaminated materials, prior to the casualty entering the Cold Zone. No contaminated dressings, materials or clothing is to enter the Cold Zone. Furthermore, it must be realised that all equipment, including medical equipment i.e. cardiac monitors/defibrillators, resuscitators, and trauma kits which is taken into the Warm Zone is considered contaminated and therefore must be decontaminated prior to being removed from the zone. If this cannot be accomplished, then it will need to be destroyed appropriately.

**Cold Zone** – this is upwind/uphill from the Warm Zone. Casualties enter from the Warm Zone via appropriately designated and marked entry points having first been fully decontaminated. Cold triage is set up in this area. Here casualties are further triaged and sent for appropriate treatment. Patient treatment areas can also be set up in this area or casualties can be transported to higher levels of care as deemed necessary. All personnel working in this area have PPE at the ready in case of a sudden wind shift in their direction.

Experience has shown that a great number of casualties will leave the immediate vicinity of the incident before response teams arrive and set up zones, as was the case following the Tokyo subway nerve agent incident (Arnold & Lavonas 2001). It is sound practice that extra decontamination, crowd control and triage teams be available to respond to nearby hospitals (Sidell, Patrick & Dashiell 1998).

### Decontamination

Ideally, the first step in decontamination involves determining the exact causal agent—is it chemical, biological, radiological or other hazardous substance? In reality, this process may take a considerable period of time therefore the relatively simple decontamination methods such as physical removal may initially prove satisfactory. However, once the causal contaminant has been identified, more complex methods such as chemical decontamination can be instigated.

Decontamination is a specialist field; one outside the boundaries of this article, therefore the specific principles and practices of decontamination will not be discussed in any great detail. Generally decontamination involves either:

a) **Physical removal** of the hazardous agent via means such as dilution and washing with water/soap, evaporation, adsorption, and scraping. These physical methods are not without their restrictions and precautions. Some chemicals hydrolyse quite slowly in water (e.g. drops of sulphur mustard) while the hydrolys products of other chemicals, such as lewisite or V-nerve agents may remain as toxic as the original chemicals (Decontamination article OPCW 1997). This in part explains why it is important that all wastewater be collected, decontaminated and disposed of appropriately.

b) **Chemical decontamination** occurs due to a chemical reaction that neutralises the hazardous agent. Chemical decontamination is considered more effective and reliable than physical removal of the agent, however it is technically more difficult as specific compounds are required to neutralise specific toxic agents (Raza 1998). Only specially trained personnel should undertake chemical decontamination.

Decontamination must be performed judiciously, in a manner which ensures that all contaminant is removed/neutralised from both the casualty's clothing and responder’s PPE, as this prevents the likelihood of any contaminant being transferred to the clean underlying bare skin during the removal of these garments prior to entering the Cold Zone.

Casualty decontamination deserves brief discussion. Generally speaking, ambulatory casualties are decontaminated in the same manner as any other individuals being removed from the contamination site. Stretcher patients on the other hand present a different situation. Decontaminating stretcher patients takes more time, personnel, and resources (Sidell, Patrick & Dashiell 1998). The process is more complicated, involves more steps and requires a logical
flow pattern. It is therefore important, given that a significant number of casualties will most probably present as non-ambulatory, that this skill be well practised and rehearsed prior to the event if it is to be performed competently.

Decontamination tasks are not usually the role of the health care provider, but rather, the fire fighter or other suitably trained personnel. However, health care providers may find themselves assisting casualties through the process.

**Medical considerations**

Health care providers should be prepared to deal with a wide spectrum of casualties, including victims with thermal burns, multiple trauma, acute myocardial ischaemia or infarction, acute bronchospasm, heat induced illness, dermatoses, musculoskeletal complaints, soft tissue injuries, embedded foreign bodies and lacerations. This is an incomplete list but it demonstrates the spectrum of injuries or illness that may arise during a chemical, biological, radiological or hazardous material incident. The challenge associated with the release of an agent resulting from these events is not so much in treating the effects of the single agent, but more so with the overlay of the agent onto the normal spectrum of injuries or illness. This may produce some challenging diagnostic and treatment problems that include:

- Casualty suffering heat exhaustion with hypovolaemia and tachycardia, who requires atropine for treatment of nerve agent vapour exposure;
- The apnoeic cyanide casualty who requires immediate antidote therapy, but who has not yet made it through to the Warm Zone;
- Multiple trauma victim with an embedded foreign body from munition fragmentation, who was responding to a known liquid contaminated environment of sulphur mustard, but has not yet developed symptoms of exposure;
- The burn victim who requires vigorous fluid resuscitation, but has received an overwhelming vapour exposure to phosgene, with incipient pulmonary oedema.

With appropriate planning, training, co-ordination and preparation circumstances such as those described can be handled in an organised, efficient manner.

**Triage** – provide the greatest good to the greatest number of victims, given limited health care resources. Health care providers acquire significant expertise in sorting conventional medical/surgical casualties. This expertise is gained through training and then routinely practiced during the course of their normal daily work when prioritising casualties/patients. It is further practiced when dealing with victims of accidents or natural disasters – road traffic accidents, fires, floods and earthquakes. However, these same personnel may have very little expertise in triaging casualties resulting from chemical, biological, radiological or other hazardous material incidents.

To effectively determine which casualties must receive immediate care and which can wait without compromising their condition, a triage officer must be familiar with the clinical presentation and the natural progression of illness and injuries. Knowing the signs and symptoms of CBR/HAZMAT agent exposure will permit the appropriate decisions to be made concerning the urgency of treatment. There may be a requirement for rendering lifesaving treatment during triage. By necessity, this will be limited to a few minutes of time at the most and address only the airway, breathing and circulation = ABC’s in primary survey of advanced trauma life support.

A common observation made in the aftermath of hazardous material accident response is that the health care providers have in most instances been inadequately trained to deal with the types of hazardous material exposures that occurred. Continuing medical education should be provided on a periodic basis to address CBR/HAZMAT toxicity, signs and symptoms of exposure, triage of mixed conventional and CBR/HAZMAT casualties, initial diagnosis and treatment and protective measures (Science Applications International Corporation 1998).

**Conclusion**

As the name implies and by their very nature chemical, biological, radiological and other hazardous material incidents are serious events, events that will most probably result in casualties, many of who may die. It is therefore imperative that rescue and other response personnel take all reasonable precautions to ensure they do not become casualties. The guiding principal and cardinal rule of operating in a hazardous environment: ‘expose the absolute minimum number of personnel, to the minimum quantity of hazardous agent, for the absolute minimum period of time’ (Dubey 1998) must be strictly adhered to.

It must be understood and accepted that health care providers have no role in the Hot Zone, for this hazardous environment is not the place to be attempting to provide any level of medical care. It is crucial that casualties be evacuated by appropriately trained rescuer personnel from the Hot Zone back to the Warm Zone. Here medical care is better able to be provided in a more suitable and safer environment. This reduces both the risk of further exposure to the casualty and the chance of injury to either the rescuer or health care provider.
The primary role of the health care provider in a CBR/HAZMAT scene consists of:

a) Operating in the Warm Zone where they will provide through rapid triage to determine priorities for treatment, decontamination and evacuation so that casualties pass through the process in a suitable time frame. This enables them to reach definitive—higher level medical care at the earliest opportunity. Due to the complexities of working in Level B or Level C PPE, performing anything other than the most basic life support measures in the Warm Zone can prove quite difficult and pose exceptional challenges.

b) Operating in the Cold Zone where they will provide casualties, once decontaminated, with immediate on scene higher-level pre-hospital medical care and arrange transport to the most suitable receiving hospital/facility.

Training health care providers to operate in CBR/HAZMAT environments is an extremely important issue; one that may seem relatively straight forward. However, in reality this is quite complex. This article provides a broad overview of preparation and approach to such incidents however the specific medical management of casualties suffering from any of the numerous conditions resulting from exposure to a CBR/HAZMAT incident has not been encapsulated. This is an entirely separate issue. Health care providers must be well trained and competent in the individual clinical management of a variety of casualties including casualties suffering trauma caused through conventional means, casualties suffering from CBR/HAZMAT related conditions, casualties suffering from psychological conditions, casualties suffering from physiological (heat etc.) conditions or casualties suffering from a combination of any of these four.

Organisations responsible for providing the health care personnel who are expected to enter these environments are ultimately responsible for ensuring these personnel receive comprehensive training relevant to their role and actions within the CBR/HAZMAT environment. Furthermore, they have a duty to ensure that re-accreditation training is forthcoming, to guarantee currency and competency. Just as ‘flight crews/paramedics require frequent re-certification of their skills, so too does the CBR/HAZMAT health care responder for these environments are unique environments, both hostile and unforgiving.

If it is considered pertinent to train health care providers in the techniques required for entering and operating in contaminated CBR/HAZMAT environments then a prudent suggestion would be that a select number of medical personnel be trained in hazardous environment response, and for these individuals to become an integral part of the local authority HAZMAT response team. As part of this team these personnel would train, ‘cross-train’ and re-accredit in accordance with local policy and safety requirements. Furthermore, whenever the HAZMAT team is summoned to an incident, these health care providers would also respond as an essential part of this cohesive unit.

References

Author
Don Hodkinson spent 20 years working as a Paramedic and Occupational Health and Safety Specialist in the Royal Australian Navy (RAN). During that time he served on several RAN ships and at many shore establishments, including teaching at the RAN Medical Training School. He served as a senior medical sailor onboard the American Hospital Ship – USNS Comfort during the 1991 Gulf War. In 1993 he worked with the United Nations Special Commission on Weapons of Mass Destruction – Chemical Weapons Destruction Group (UNSCOM – CDG) in Iraq, where he monitored and assisted in the destruction of Iraq’s chemical weapons. In 1995 he resigned from the RAN and took up employment with the Tasmanian Ambulance Service as an Ambulance Officer. He returned to Australia, and in 2000 regained employment with the Tasmanian Ambulance Service. He is currently employed as an Inspector with Workplace Standards Tasmania.
A health perspective in a counter-terrorist environment

This information was provided by the Australian Government Department of Health and Ageing, April 2005

Introduction
Australia has a robust, world-class health care system. However, the number of people injured and in need of urgent medical treatment from a terrorist attack could stretch the capacity of any health system in the world. The Australian and State/Territory Governments, have committed millions of dollars and substantial resources to ensure effective plans are in place and that health agencies are prepared to respond to the health consequences of a terrorist incident.

Australia has taken an all-hazards approach in planning a health response to a terrorist attack or naturally occurring disaster. The hosting of the Sydney 2000 Olympic Games strengthened Australia’s health response planning compared to many other countries in the region. Following the Games, a much greater focus to counter-terrorism planning came after the events of September 11, 2001, and that emphasis is continuing in the present day. Since 2003 the Australian Government has provided more than $170 million on specific health counter-terrorism measures.

Response responsibility
In the federal system, the constitutional responsibility for the front-line emergency response to terrorism rests with individual State and Territory Governments. States and Territories run the hospital systems and are responsible for treatment of injured citizens. All State and Territory health authorities in Australia have health disaster plans in place to co-ordinate health facilities in their jurisdictions in response to mass casualty situations. These plans are well established and rehearsed and are co-ordinated with other emergency services within the jurisdiction.

The Australian Government recognises that nationally we must also have a capacity to respond, provide national leadership and assist States and Territories should a terrorist attack happen in Australia. Individual jurisdictions are supported by a close collaborative network of health departments across the nation and in the Australian Government. The Australian Government has specialist capabilities, with the Federal Health Department and the Department of Defence, which can be made available to States and Territories should an incident occur. Australia’s health network ensures that if the consequences of a bioterrorist event are beyond the capacity of an individual jurisdiction, a rapid national multi-agency response is possible. The Australian Health Disaster Management Policy Committee (AHDMPC) is pivotal in providing a national health response.

Australian Health Ministers’ Advisory Council
The Australian Health Ministers’ Advisory Council established the AHDMPC in February 2003. The AHDMPC’s membership includes the Australian Chief Medical Officer, senior officials from each State and Territory health jurisdiction and experts in public health, mental health, surgery and emergency and disaster management. The Australian Defence Force, Emergency Management Australia and a senior health officer from New Zealand are also members of the Committee. The Committee is chaired by the Exercise Canister 2005 Initial FESA decontamination point for walking wounded
Deputy Secretary of the Department of Health and Ageing.

The main purpose of this high level committee is to identify Australia’s level of preparedness to respond to the consequences of a terrorist or naturally occurring disaster and to co-ordinate a national response in the event of mass casualties or outbreak of disease. The AHDMPC provides a forum to assess the national capability, identify gaps and advise on a strategic national approach for the development of policy and operational plans. While the AHDMPC is fully cognisant of the need to provide a response to a terrorist threat, broader planning is undertaken using an all-hazards approach with consultation with clinicians and other experts. The Committee has succeeded in strengthening collaboration in both planning and response across jurisdictions.

To further enhance the committee’s planning work, AHDMPC and the Department of Health and Ageing convened a Clinical Stakeholder Forum in May 2004. Clinicians with expertise in areas of intensive care, trauma surgery, anaesthesia, burns, thoracic medicine, infectious diseases, pharmacology, pain management and disaster medicine attended the forum and discussed issues associated with health disaster management. The outcomes from the Forum led to the formation of a national Clinical Advisory Group that is chaired by the Australian Chief Medical Officer.

One of the earliest tasks undertaken by the AHDMPC was a comprehensive assessment of Australia’s national health assets to respond to the consequences of a terrorist incident resulting in mass casualties. This was the first time an audit of Australia’s overall emergency medical capacity had been undertaken. This work identified that the factors that could limit a health response in Australia are similar to those identified by other countries and include workforce issues, the efficient use of health resources and the need for effective communication and coordination across jurisdictions.

Preparing for an emergency response

March 2005 – FESA WA successfully conducted its biggest ever multi-agency training exercise at the Perth Convention Centre. The exercise, named Exercise Canister, involved approximately 400 personnel from FESA Fire Services, the WA Police Service, St John Ambulance, the WA Chemistry Centre and the Department of Environment, working together in a biological contaminant scenario.

Volunteers from the State Emergency Service and Emergency Service Cadets acted as casualties, suffering a range of ‘symptoms’ after being exposed to an unidentified gas from a canister located in one of the theatres of the Convention Centre.
of medical resources, provision of emergency supplies and transport arrangements in a hostile environment. The assessment has been vital for the AHDMPC to provide accurate and practical advice on national capacity to ensure adequate resources are in place to support a response to a terrorist attack. The national capacity assessment will be repeated during 2005.

The activities of the AHDMPC are currently focused on confirming and providing nationally co-ordinated actions to address issues identified in the audit, particularly those associated with workforce. A working party is now identifying ways of providing surge capacity in the workforce and sustaining a response. This involves promoting disaster medicine training and education opportunities in health training facilities. Since the Asian tsunami disaster, consideration has also been given to the best ways to establish teams of qualified volunteers that can respond to a health emergency either within Australia or overseas.

**Australia’s capacity to respond effectively**  
A terrorist attack that involves chemical, biological or radiological materials can have devastating physical and psychological health consequences, which would require specialist healthcare. The Australian Government with States and Territories are ensuring that Australia has appropriate guidelines and treatments available to manage the health consequences of these events with a major focus on biological incidents. An ongoing epidemic of an infectious disease poses a considerable threat to the capacity of the health system to respond and, in particular, capacity to provide adequate treatment, decontamination and isolation facilities.

A special sub group of the AHDMPC is examining the psychological consequences of a terrorist or naturally occurring health disaster, to ensure that we have appropriate strategies and plans in place to assist victims both during and in the recovery phase of a disaster.

Following the events of September 11, and the subsequent anthrax mail attacks in the USA, the Australian Government has committed more than $27 million to establish a National Medicines Stockpile. The Stockpile is a national reserve of essential vaccines and specific medications able to be sent to jurisdictions to support the health response to a terrorist event that involves a chemical, biological or radiological agent. The Stockpile is designed to supplement existing medical stocks kept in the Australian hospital system. It also includes specialist medical supplies, such as the nation’s stock of smallpox vaccine.

The Australian Government has also taken a leadership role in supporting the jurisdictions by establishing a National Incident Room (NIR). The NIR has proved to be a focal point for co-ordination of AHDMPC, the Communicable Diseases Network of Australia (CDNA), and the Department of Health and Ageing with other agencies during the national response to SARS and avian influenza. Similarly, the NIR would be a focal point for information and advice during a terrorist incident. Through the National Incident Room, the AHDMPC was immediately activated to co-ordinate the national health response to the Asian tsunami disaster in December 2004. The AHDMPC facilitated the formation of civilian medical teams and supplies and established a public health advisory group.

An effective response to a bioterrorist incident depends upon early warning of a potential event. In the 2004 Federal Budget, $10.1 million was provided to develop a comprehensive public health surveillance system to provide real-time disease monitoring information for the purpose of early detection. The system will integrate jurisdictional and national surveillance systems, enhance the involvement of general practitioners in surveillance and use secure communications to improve detection. Early warning is supplemented by confirmation and rapid diagnosis. Enhancements are also underway to strengthen security and capacity of Australia’s public health laboratories to test disease agents that may be deliberately released by terrorists.
Protection of critical infrastructure

Security around health infrastructure is also vital to ensure stability of health services. Most health infrastructure is in the public domain, but a few important elements are within the private health system. As a result, the Health Infrastructure Assurance and Advisory Group (HIAAG) was established in November 2003. This Group is developing a national strategy for the protection of private sector owned and operated critical health infrastructure and is also providing communication links with Government and owners and operators of private health infrastructure. The HIAAG has undertaken a project to examine vulnerabilities in critical supply chains for essential medical products that would be required in a health disaster.

Australia has many structures in place to effectively respond to a terrorist threat that impacts on the health of its people. Within these structures national plans have been developed over recent years for health disaster response. These plans include:

- a National Burns Plan;
- Guidelines for the treatment and management of smallpox and anthrax;
- the Mass Casualty Transport Review;
- Mental Health Disaster Response plans; and
- the National Response Plan for Mass Casualty Incidents Involving Australians Overseas (OSMASSCASPLAN).

No plan is effective without being properly tested in an exercise. The Department of Health and Ageing along with State and Territory health departments are participating in a number of national operational exercises to test responses to a health disaster.

Conclusion

Ensuring that Australia is prepared to respond to the health consequences of a terrorist event is a continuous process of preparation and review to ensure health systems are capable of dealing with a variety of scenarios. The current level of preparedness and awareness is strong and has been tested in responses to the threat of SARS and avian influenza outbreaks and the Asian tsunami disaster. In all of these health threats agencies have debriefed and used the lessons learnt to further strengthen preparedness and capacity to respond to a health emergency.

Australia’s preparedness and response for a health disaster from any cause requires close collaboration between the Australian Government and States and Territory health authorities, and integration of health plans into broader emergency plans. Involving clinical and disaster management experts has been critical to the planning process. Since 2003, the AHDMPC has proved to be a useful mechanism to undertake this complex co-ordination.
Abstract
Over the past 20 years or so, we have gained a great deal of knowledge and experience in both public education as a whole, and that part of public education that can be achieved through the school curriculum. However, while there has been a considerable number of terrorist acts around the world, although fortunately none in Australia, we seem to have little to guide us on the nature of effective public education in terrorist-induced disasters. In this paper, I attempt to draw some lessons from our previous experience in “natural” disaster public education, both generally and at school level and suggest that a terrorist-initiated disaster is qualitatively different from natural and accidentally human-induced disasters. I conclude that to achieve its aim of mitigating such disasters, and to maintain credibility with the public, the disaster management community may have to broaden its approach to school education, distance itself from its political masters and itself become more politically aware.

What do we already know about public education and response to disaster warnings for disaster mitigation?
In 1989, the International Ad Hoc Group of Experts established by the Secretary General of the United Nations to advise on the creation of the International Decade for Natural Disaster Reduction, stated “Knowledgeable and involved people are critical to building a safe society” (Press, 1989). Indeed, the Rationale for the Decade (National Academy of Sciences, 1989) reminded us (para. 51) that successful implementation would require the involvement of all levels of the community, from world-wide to the local level. That aim was achieved particularly effectively in the school context and much good work emerged in preparing students, not only in the prevention of, preparation for, response to and recovery from disastrous extreme natural events, but also in helping them to appreciate their roles as citizens in creating safer societies. This has been noted earlier (Lidstone, 1996) and more recently observed during the evaluation of the “Blazer to the Rescue” intervention where the majority of young children appear to be exceptionally knowledgeable and involved about the dangers of fire (Lidstone, 2003 forthcoming). However, anecdotally appears to be also true for young children’s appreciation of potential dangers from cyclones and other severe storms.

In the context of hazards resulting at the interface of social and natural environments, it has long been accepted the prime objective of public education efforts is to reduce potential loss of life and property and it may seem logical to claim initially that this is precisely the purpose in the case of socio-political hazards. The series of seminars organised by EMA early in 2003 on lessons learned from the 9/11 events in the United States explicitly stated they would focus solely on the management of the disaster itself and would not consider its causes. While this stance may have been appropriate for the intended audience, I should like to suggest that focusing on terrorist events as if they are not part of the global socio-political scene may be perceived as inappropriate as portraying “natural disasters” solely the result of natural events divorced from their social context.

However, before exploring that idea further, I should like to explore the parallels between public education for the mitigation of disasters resulting from natural (and accidentally human induced) and socio-political events. Whatever the basic hazard, the logical approach to public education is for hazard managers to determine those actions by the general populace most likely to mitigate a disaster and then to promote such actions through all available means. These may include public
drills, advertising and, most frequently, pamphlets, posters and even fridge magnets.

A brief survey of such pamphlets for extreme natural events showed they are reassuringly similar wherever their origins and regardless of the hazard being addressed. Pamphlets informing people on appropriate behaviours in the event of earthquakes from California, New Zealand and Australia remind people to stay away from tall buildings if outside and, if inside, not to run outside but to seek safety in bathrooms or beneath doorways and to avoid tall bookcases. Pamphlets concerning cyclones, bushfires or wildfires are similar.

In addition to lists of instructions on appropriate behaviour, many civil defence and similar organisations have tried to increase public understanding of physical processes that may become hazardous. The Earthquake Awareness for Australians pamphlet produced by the former Natural Disasters Organisation is a good example. Of the eight pages, six are devoted to information about earthquakes in general and in Australia, the Newcastle event and risk and epicentre maps of Australia. The remaining two give ‘duck-and-cover’ advice. Previous research (Lidstone, 1994, 1995) has shown that a similar pattern occurs in many geography textbooks used in schools.

In terms of public response to disaster warnings, we may return to the series Disaster Prevention and Mitigation: A compendium of current knowledge published by the United Nations in the 1980s. In Volume 12 entitled Social and Sociological Aspects (UNDRO, 1986, p. 41), 23 factors influencing response to disaster warnings are tabulated. Of the 23 factors, those listed in Table 1 seem to be particularly relevant.

The factors listed in Table 1 may be summarised as follows.

People tend to believe and act upon repeated authoritative warnings that come from a demonstrably reputable source, that are consistent with their previous and current experiences, and that provide information they can discuss within their family group. Most people will not take defensive action if they have previously received warnings and had no hazard materialise or when there is little observable evidence of danger.

In this light, response to warnings is best seen as a decision-making process through which people attempt to rationally determine whether or not they are at risk and on that basis decide what course of action to take.

I would assert the various disaster management agencies in Australia are viewed by most people as offering advice with high levels of integrity and consistency—certainly regarding extreme natural events and generally when faced with accidentally human induced hazards. However, when the same agencies are faced with a potential socio-political hazard, the messages received by the public may well become both less authoritative and inconsistent as a direct result of the political nature of the hazard. I will turn to a recent international study that may shed some light on the potential reactions of young people to warnings related to socio-political (terrorist) hazards.

### Table 1. Selected factors influencing response to disaster warnings (after UNDRO, 1986)

1. Any warning messages broadcasted, especially the early ones, will be accepted at face value only by a minority of the recipients. Most will engage in confirmation efforts for a time.

3. The closer a person is to the target area of a warning, the higher the incidence of face-to-face communication and the larger the number of sources used in confirmation.

4. Warnings from official sources (police, fire department etc) are more likely to be believed.

5. Message content per se influences belief. The more accurate and consistent the content across several messages, the greater is the belief.

8. The recipient's sense of the sender’s certainty about the message is important to belief.

9. Message credibility is related to what happens in the confirmation process. The response of official sources to questions which call for validation, corroboration, or refutation helps determine believability.

10. A person is more likely to believe a warning of impending danger to the extent that perceived changes in his physical environment support the contents of the message.

12. Past experience may render current warnings less credible if disaster is not part of that experience.

15. As warning messages increase in their accuracy, and/or information about survival choices, and/or consistency with other warnings, and/or clarity about the nature of the threat, the probability of positive response increases.

17. Evacuation tends to be a family phenomenon. The best way to accomplish evacuation appears to be repeated authoritative messages over broadcast media which stimulate discussion within the family and lead to evacuation (if it is going to happen at all).

23. Regardless of the content of a warning message, people tend to define some potential impact in terms of prior experience with that specific disaster agent.
Students’ perceptions of politicians and political structures in Australia

These comments are based on an international study conducted under the auspices of The International Association for Educational Achievement from 1996–2000 (Torney-Purta, Lehmann, Oswald, & Schulz, 2001), and an analysis of the responses of Australian young people (Mellor, Kennedy, & Greenwood, 2001). The Australian report confirms that the legitimacy of democratic governments depends on the trust of citizens and that 14-year-olds are already members of a political culture. They found that internationally, student responses demonstrated levels of trust and concepts of the responsibilities of government that largely correspond with those of adults as found in other research and that students are moderately trusting of their government institutions. The courts and the police are trusted the most, followed by national and local governments, while political parties are trusted the least.

This is probably good news for Australia where in most disaster plans, the senior police officer present is in charge and disaster management is generally in the hands of local government departments. We might hope that if warnings are given to the public by a member of the police force and advice on appropriate behaviour comes from respected organisations—and the state emergency services appear to command such respect, then there will be a general willingness on the part of the public to act accordingly.

However, it appears young Australians are less trusting of the political system than those of many other countries, and where they do express a level of trust, this trust is usually less enthusiastic than elsewhere. Table 2 represents Australian students’ concept of conventional citizenship as recorded by Mellor et al. (ibid, p. 111).

Mellor et al. (ibid p. 112) suggest that young people’s view of political engagement as relatively unimportant is further indicated by two thirds rating a citizen engaging in political discussions as unimportant. Presumably this means two thirds of young Australians think you can be a good citizen and not take part in any political discussions. Just half of the Australian students believe a good citizen knows about the country’s history, and follows political issues in the press. It seems for Australian students, a good citizen does not have to subsequently discuss these opinions with fellow citizens, or anyone else. Furthermore, the Australian students only positively endorse two of the items on the scale. They believe a good citizen votes and shows respect for government representatives. However, even this is a minimalist position, and Australian youth register significantly below the international mean.

The survey also shows (p. 113) that Australian students (more than young people in most other countries surveyed) hold the joining of a political party in low esteem. It is therefore not surprising that a majority do not expect to join one when an adult and do not expect to be a candidate for any office. However, Mellor et al (ibid) suggest that the results also indicate a disassociation from, and perhaps a disdain for political parties and those who represent them in democratic assemblies. In the context of whether to take action on socio-political hazard warnings that may come from someone overtly in political life, one major factor known to influence potential mitigation behaviour is thus breached.

### Table 2. Australian students’ concept of conventional citizenship

<table>
<thead>
<tr>
<th>An adult who is a good citizen</th>
<th>Totally Unimportant</th>
<th>Fairly Unimportant</th>
<th>Fairly Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Votes in every election</td>
<td>3</td>
<td>8</td>
<td>34</td>
<td>55</td>
</tr>
<tr>
<td>Joins a political party</td>
<td>42</td>
<td>41</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Knows about the country’s history</td>
<td>15</td>
<td>30</td>
<td>40</td>
<td>15</td>
</tr>
<tr>
<td>Follows political issues in the newspaper, radio or TV</td>
<td>16</td>
<td>34</td>
<td>42</td>
<td>8</td>
</tr>
<tr>
<td>Shows respect for government representatives</td>
<td>9</td>
<td>24</td>
<td>49</td>
<td>18</td>
</tr>
<tr>
<td>Engages in political discussions</td>
<td>18</td>
<td>48</td>
<td>27</td>
<td>7</td>
</tr>
</tbody>
</table>

(Table 6.1 in Mellor et al. 2001)
Trust in government related institutions

Similar attitudes were revealed in the context of trust in institutions (Table 3 below).

Overall, Australian students express trust, albeit in a guarded manner, in most institutions with the exception of political parties who are mistrusted by 70 per cent of students. A total of 59 per cent supported the Government in Canberra, and 60 per cent trusted the National Parliament, although a considerable proportion of students declined to answer these questions and are therefore not included in the percentages shown. The responses to the other three institutions (the police, the courts and local government) showed that a substantially greater proportion trusted them, with many fewer students declining to respond.

Additional unscaled items reveal that approximately half of the Australian students trusted the news in the press, the radio and on television most of the time or always, although again they showed significantly lower levels of trust than their international peers.

Mellor et al. suggest (ibid p. 124–5) there is much to ponder in these responses. Trust in the institutions which carry out the democratic procedures of a nation is an essential part of the fabric of a civil society, and some of the institutions do not rate highly with Year 9 Australian students. While in Australia, the greatest trust is placed in the police and the courts, of the rest, the closer to the community is the government institution serving it, the more that government institution is trusted. This is in contrast to the international cohort, where trust in government institutions was much the same regardless of level.

In summary, it appears that Australian youth are not very engaged in their democratic options and certainly not as engaged relative to international peers. While this may be good news for the current cohort of politicians, the picture suggests not only that democracy is somewhat fragile in Australia, but more importantly for the issues of this paper, that the credibility gained by local emergency service organisations in the context of “natural” and other ostensibly “non-political” disasters such as toxic spills and industrial leakages may well be damaged by closer identification with national politicians who may have a variety of motivations for emphasising or de-emphasising risks from terrorism.

However, all is not negative for the disaster management community. Students’ attitudes to conventional citizenship are in contrast to their attitude to what the original study called social movement citizenship. Some 80 per cent of students thought it was important for a good citizen to participate in activities to benefit people, 74 per cent thought the same for taking part in activities to protect the environment and 68 per cent thought citizens should take part in activities promoting human rights. Yet only 57 per cent thought citizens should participate in a peaceful protest against a law believed to be unjust. It seems that Australian students are more inclined to be involved in social movement types of activities than in conventional citizenship activities. This is an important finding since it suggests young people might increasingly look outside the formal structures of governments to find solutions to problems. There is some evidence at the present time to suggest that increasingly young citizens are doing this in the face of globalisation and other trends which they see conventional democratic forces as unable or unwilling to confront, although once again, Australian students are not as engaged as their international peers, although girls score higher than boys on this scale. Despite the efforts of environmental and social educators over at least 20 years, only 24 per cent would engage in that most minimalist political activity of writing a letter to a newspaper about a social or political issues, well below the international mean.

Finally, however, it is possible that the basic thesis of this paper—that a lack of faith in government institutions by the general public (including young people) is potentially damaging to the credibility of the hazard management community, may have been fatally flawed by the findings reported in The Weekend Australian of July 26–27 (Stewart, 2003). The paper reported that a survey conducted the previous Tuesday had shown “two-thirds of Australians believe Howard misled them over the reasons for going to war with

<table>
<thead>
<tr>
<th>Table 3. Australian students’ responses to trust in government institutions (Table 6.14 in Mellor, 2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much of the time can you trust each of the following institutions?</td>
</tr>
<tr>
<td>The Commonwealth Government in Canberra</td>
</tr>
<tr>
<td>The local council or government of your town or city</td>
</tr>
<tr>
<td>Courts</td>
</tr>
<tr>
<td>The police</td>
</tr>
<tr>
<td>Political parties</td>
</tr>
<tr>
<td>National parliament</td>
</tr>
</tbody>
</table>
relationships and the distribution of responsibilities must be required to question, communicate and evaluate. The first two of these are to be addressed, then students [Lambert & Machon (2001, p. 187) point out that if community involvement. • political literacy; and • social and moral responsibility; strands of education for citizenship that include: Curriculum Authority (QCA) UK, 1998) highlighted three curriculums and citizenship. A major report in the UK (Qualifications and Curriculum Authority (QCA) UK, 1998) highlighted three strands of education for citizenship that include: • social and moral responsibility; • political literacy; and • community involvement. Lambert & Machon (2001, p. 187) point out that if the first two of these are to be addressed, then students must be required to question, communicate and evaluate difficult and complex issues which involve power relationships and the distribution of responsibilities as well as rights and so on. Lambert (1999, p. 14) argues that it is morally careless for teachers to teach complex (geographical) issues as if there were “clear cut” answers on the one hand, or, on the other, “no right answers” which can imply to students that “anything goes” and encourage a “who cares?” approach to serious matters. He says “If students were never to experience uncertainties or handle the ambiguities which are part and parcel of searching for a good personal response to supercomplex issues, then their education would fail to contribute effectively to their moral development.” Perhaps prescient of the findings on Australian young people’s concept of good citizenship, Lambert (1997) characterised morally careful education as “education for conversation”, thus identifying communication skills as critical in promoting a capacity to make worthwhile attachments and meaningful distinctions. “Effective communication is the goal of good conversation – with other people but also with data, information technology and images – and good conversation is a method available to us to expose falseness and inaccuracy” (p. 3). While it may be argued that encouraging such conversations is the precise intention of the Studies of Society and Environment key learning area, created as part of the push towards a national curriculum in the 1990s, I believe that international experience shows such courses lead to an overemphasis on parochial issues as unique rather than enabling students to see larger (and preferably international) pictures. In order to hold conversations that cross cultural and national boundaries, there is a need for commonly agreed forms of language, and these are commonly recognised as the academic disciplines. Haggett (1990), writing in the context of geography, but of equal relevance to history, reminded us that scholarship consists in a focus on the structure, grammar and syntax of forms observed. While terrorist-initiated disasters may be studied in a wide range of disciplinary areas, I will suggest some ways in which they might be considered spatially—for instance, through geography. Students may develop conversations on the spatial distribution of various disenfranchised groups, how they come to be disenfranchised, their characteristics, and their responses to those seen as the cause of their disenfranchisement. Various acts of terrorism around the world (both localised and cross-border as well as “brutish” and more subtle forms such as electronic terrorism) and their effects on specific communities may be differentiated and described in terms of spatial distribution of origins and effects. These discussions can then lead to further conversations on alternatives to terrorism for the perpetrators and alternatives to victim hood for those who are targeted.
Finally, students can engage in conversations on how various societies respond to what has been presented as a global threat, how we can make ourselves less vulnerable to terrorist activities and what can be done to protect ourselves from potential attack while we develop strategies to reduce their probability.

Conclusion
It may appear that such concerns go far beyond the brief of the disaster management community and may expect strong opposition from government functionaries who want to keep control of the national political agenda. However, while the ‘duck-and-cover’ advice so long regarded as the epitome of natural disaster education may have done sterling service before being replaced by more inclusive citizenship-oriented public education, I do not believe that such approaches have any potential in preparing our young citizens for the situation that has developed post 9/11. The hazard management community has to enter the broader curriculum debate on citizenship, and if it is to do so and retain credibility, it may have to distance itself from its paymasters in both state and national government.

References


Author
As a high school geography teacher, John Lidstone had always been interested in hazards and disasters and their management. An invitation to the public education and disaster management conference at Mount Macedon in 1984 cemented the interest, and in his then new role as a lecturer in Education at one of the forebears of the Queensland University of Technology Faculty of Education, he proceeded to write curriculum materials to encourage students to come to terms with hazards in their environment and to research further improvements in disaster management education, especially for young people. His most recent publishing effort is International Perspectives on Natural Disasters published by Kluwer in 2004, with Joseph Stoltman and Lisa DeChano. He regrets that the book is too expensive for most teachers in developing countries – for whom it was originally intended – to afford.
Abstract
Within the current climate, all health care facilities need to have internal and external emergency plans made available to staff in an easy to follow format. In 2001 the comprehensiveness of the Royal Darwin Hospital Emergency Procedures manual received national recognition when Royal Darwin Hospital won the Federal/State Government stream in the post disaster category of the National Australian Safer Communities Award from Emergency Management Australia. In 2002 the external emergency plans at Royal Darwin Hospital (RDH) were activated to deal with a number of victims of the bombings in Bali. This article outlines the process involved in developing the emergency plans that were essential for Royal Darwin Hospital to be able to effectively respond during what is now known as Operation Bali Assist.

Introduction
Royal Darwin Hospital is one of Australia’s most remote tertiary referral centres—a 300 bed hospital facility located in Darwin in northern Australia. The hospital is closer to Indonesia than to any other Australian tertiary healthcare facility. It was because of its proximity to Indonesia that about 100 patients were evacuated to Darwin following the bombings in Bali on 12 October 2002.

In recognition of the location of Royal Darwin Hospital and the significance of its proximity to south-east Asia, on 20 September 2004, the Prime Minister Mr John Howard announced plans to make Royal Darwin Hospital a national centre for critical care and trauma through the allocation of an additional $50 million in funding. This funding was further enhanced to the tune of $16.5m in the Federal Budget of 2005.

To date, much has been written regarding the response by Royal Darwin Hospital to dealing with the bombings that occurred in Bali in October 2002. There can be no question that the response was efficiently and effectively carried out. However, for Royal Darwin Hospital staff to be able to respond to this unprecedented type of emergency within the Australian health care system, it was important that a disaster plan had been prepared which supported such a response.

Royal Darwin Hospital Emergency Management Committee
The Royal Darwin Hospital Emergency Management Committee has responsibility for developing and monitoring internal and external disaster plans. Prior to the Bali incident membership of the Emergency Management Committee was comprised of several hospital executive members as well as medical, nursing, engineering and administration representatives. The Committee met on a monthly basis to look at emergency management issues including developing policies and procedures to deal with all types of internal and external emergencies. Internal emergencies are those involving fire and evacuation, personal threat, bomb threats, medical emergencies and mass casualties, with external emergencies covering natural disasters such as cyclones, earthquakes and floods. The Emergency Management Committee reviewed internal and external disaster plans on a biennial basis, with the development of emergency plans being supported by training of various Committee members. The requirement for

Royal Darwin Hospital to be prepared for the annual cyclone season and to be able to respond to any emergency arises from the isolated location of Darwin.

Testing and revising the plans

The possible threat to Darwin from cyclones set the stage for emphasising the importance of having emergency plans, with the Emergency Management Committee needing to make sure that any plan could work during such an emergency.

Prior to the Bali incident the Emergency Management Committee at Royal Darwin Hospital had several opportunities to test emergency plans when the hospital prepared for the annual cyclone season. In January 1997 existing plans were activated and an Emergency Command Centre was established when Cyclone Rachael threatened the Northern Territory coast. In January 1998 the emergency management plans were again tested during the Katherine floods. In December that year, the northern coast was threatened by Cyclone Thelma, which had been declared a Category 5 cyclone. This was the strongest cyclone to threaten the Northern Territory coast since Cyclone Tracy which had wrought mass devastation to the city of Darwin in December 1974.

The proximity of Cyclone Thelma required full activation of the Royal Darwin Hospital Cyclone emergency management plan. This involved establishing a central command centre from which the emergency plans were managed and monitored.

The emergency management plans were further tested in 1999 when more than 2000 residents from East Timor were evacuated to Darwin. After each of these threats the Royal Darwin Hospital Emergency plans were evaluated for their effectiveness and further refined by the Emergency Management Committee.

The evaluation process required key hospital and health department staff to attend meetings with various representatives of the Emergency Management Committee, with the evaluation process culminating in the development of a report identifying where the plans could be improved. The Emergency Management Committee then reviewed the report and identified where plans could be improved and made changes accordingly. The use of continuous quality improvement processes proved to be essential for ensuring that plans were kept current, relevant and at the forefront of staff awareness.

In late 1995 Carol Mirco, as Nursing Director of the Division of Surgery at Royal Darwin Hospital and member of the Hospital's Emergency Management...
Committee, attended a Disaster Medicine Course conducted by the Australian Emergency Management Institute at Mount Macedon. This well structured course introduced participants to the broad principles of emergency management and the importance of preparedness. Previous Emergency Management Committee members had attended similar programs.

Carol and other Committee members had also attended emergency management training programs including the Introduction to Emergency Management program conducted by the Northern Territory Emergency Service and the Recovery Management program conducted by the Australian Emergency Management Institute. The need for senior personnel to receive practical training and education in the development of emergency plans is an essential element in providing the groundwork for these key individuals to be able to develop effective responses to internal and external emergencies.

It is important that members of the Emergency Management Committee participate in emergency management training exercises with other Government departments and Non-Government Organisations. In addition to developing plans, the Emergency Management Committee met with other services within the Department of Health and Community Services (formerly Territory Health Services), the NT Emergency Service and other key personnel including the NT Police, the Department of Defence, St John Ambulance NT and various private enterprises, including the Darwin Airport Authority and off-shore gas suppliers. These meetings allowed Committee members to participate in table-top exercises to examine all elements of preparedness and the Hospital's response capability. Having key personnel participate in table-top exercises, helps familiarise staff with responses to emergencies and keeps them up-to-date with disaster plans, preparation and response. Table-top exercises provided members of the Royal Darwin Hospital Emergency Management Committee with information about the possible types of external emergencies that could occur and emphasised the importance of Royal Darwin Hospital being able to respond effectively given its proximity to south-east Asia and its isolation from other capital cities within Australia. These meetings provided opportunities for members of the Committee to meet key contacts and establish links with external personnel.

Early in 1998 the Emergency Management Committee assumed responsibility for revising the plans following the Hospital's response to the Katherine flood. Similarly, the plans were evaluated following Cyclone Thelma, with meetings held and reports being submitted by each department outlining issues to do with the plan and the feasibility of proposed activities. The effectiveness of the functioning of the command centre operations was also examined. Each of these evaluations identified some key elements of the plan that worked well, and highlighted things that may have worked in theory but did not work in real-life circumstances. Given recent experiences, it was recognised that emergency plans needed to be developed which outlined the role of Hospital Executives as well the role of managers and staff within each department. As a result all emergency management plans were updated and standardised. This involved developing plans for each service area and giving managers responsibility for reviewing the plan for their service area, which was then incorporated into the overall plan. The Emergency Management Committee found that having one or two key personnel responsible for overseeing the development of plans ensured that plans remain consistent throughout the organisation and that the plan for each service area is compatible with the plans for all other services.

After Cyclone Thelma, the process of evaluation and development took approximately four to five months to complete, with the final plans being endorsed by the Hospital Executive before being distributed to service areas. Existing internal and external emergency plans were developed using a standard framework. Each plan, whether cyclone, bomb threat or fire, was prepared using the same simple format, thereby ensuring that
managers only needed to become familiar with one format irrespective of the type of emergency.

Some of the key issues discussed by the Emergency Management Committee included:

• developing standardised plans using one framework;
• identifying what is essential in a plan and the level of detail required;
• ensuring local work areas have their own plans;
• planning ongoing emergency training programs;
• nominating who should have access to the Command Centre; and
• organising rest relief for hospital and emergency command centre staff.

As could be expected, having an effective communication strategy is central to any plan, as is identifying key staff that should be a part of the command centre and how these roles would be shared over a prolonged period of time.

Following endorsement a copy of all emergency management plans were located in the hospital’s Command Centre, with copies also being provided to external agencies.

In 2000 these plans were highly commended by the Australian Council on Healthcare Standards (ACHS) Accreditation Team. In 2001 the comprehensiveness of the Emergency Procedures manual received national recognition when Royal Darwin Hospital won the Federal/State Government stream in the post disaster category of the National Australian Safer Communities Award from Emergency Management Australia².

Having these emergency plans activated during previous threats helped Royal Darwin Hospital when the external disaster plan was put to the most exhaustive test in October 2002.

Issues to be considered when developing a plan

When developing the emergency management plans for Royal Darwin Hospital, the Emergency Management Committee considered the following issues:

• identifying personnel who are required within the Central Command Centre;
• identifying an internal and external communication strategy;
• identifying links with external personnel/agencies;
• determining what non-essential services can be deferred/cancelled;
• determining which patients can be discharged—to where and how;
• identifying the role of specialists and senior nursing staff and the establishment of a chain of command;
• allocating areas where patients can be treated and the resources required for that area;
• identifying what support staff will be required including administrative staff, wardsmen, cleaning, catering and engineering staff;
• organising additional linen, pharmacy, stores, and food supplies;
• providing rest relief for staff in the situation where the disaster threat extends over a prolonged period of time;
• managing relatives and identifying an appropriate area for the location of relatives;

• managing the media;
• identifying what additional security measures will be required during any mass emergency situation;
• identifying a strategy for debriefing staff; and
• embedding a whole-of-facility review process for any plan after the disaster situation has passed.

Depending upon the type of emergency, activating a disaster plan involves identifying what non-essential services have to be cancelled or deferred. This may include elective surgery and outpatient services.

Any effective plan needs to deal with the aftermath of the incident including providing opportunities for staff to come to terms with the incident and the need for formal and informal debriefing activities.

The final thing to consider after ‘stand-down’ is declared is when to return the facility to ‘normal business’. Staff may require respite before returning to normal activities, with staff given time to refresh and come to terms with what they have just dealt with.

The Plan in action

Successful emergency responses "don’t just happen." Successful responses are in fact, the product of extensive planning, practice and preparedness—of testing and re-testing capacity and resource. They are the product of communication and collaboration, and expecting the unexpected while maintaining core business activities. Such was the case when the Royal Darwin Hospital became a critical component of what is now known as Operation Bali Assist.

The template for the response was the plan formulated well in advance of the tragedy. While the plan was tested and reviewed, the real test arose with the terrorist bombing in Bali 2002.

The process

At approximately 11pm (Bali time) on the evening of Saturday 12 October 2002, a series of terrorist explosions targeting civilians, including a large number of Australians, were detonated. Early the following morning, and without prior warning, a single Royal Darwin Hospital Emergency Department presentation raised an invaluable alert.

A young man, who had been at Kuta Beach's, Sari Club the evening before, arrived unannounced with injuries sustained in "... an horrific bomb blast." To the amazement and horror of staff, he spoke of climbing across debris and dismembered bodies, and of making his way to the airport to catch the "... last civilian flight" to Darwin. While his injuries were relatively minor, his harrowing story was one of terror, of death and mayhem, of chaos and danger involving large numbers of Australians. All this within two flying hours of Darwin.

Critically, and without hesitation, the treating clinicians immediately recognised the possible implications for the hospital, and alerted senior administrative staff. Immediately, the External Disaster protocols encompassed within the Emergency Procedure manual were tentatively activated. Bed managers assessed occupancy levels and support services were alerted. Specialist teams quickly began to assess the potential of “freeing up” beds, and a range of alternatives were considered and communicated should the need arise.

At 10:00am Darwin time, hospital administration received a formal call from the Department of Defence, advising that a C-130 Hercules aircraft from RAAF Headquarters in Sydney was to depart for Bali, via Darwin, with a partial medical crew. Advice was also given that certain reservist Hospital staff would be “called up” for duty, and specific supplies requested. The national plan, at this stage, however, seemed intent on evacuation to major centres throughout Australia, rather than Darwin.

By 1pm on Sunday 13 October 2002, following discussions with the NT Disaster Committee, and the Chief Minister, a national decision was reached that Darwin would be the “first port of call” for survivors evacuated by a number of C130 aircraft. Shortly after, the Northern Territory and Royal Darwin Disaster plans were formally activated.

From a hospital perspective much of the work had already commenced. Key personnel were already in place, and others were advised of the impending situation. Senior management assembled in the hospital’s designated disaster control room, and a wide range of staff was recalled for duty.

Photo: Peter Farkas

Patients being triaged and treated in the Emergency Department
A decision was made to defer all pending elective activities and to fully use the resources of the co-located Darwin Private Hospital. This latter decision was of critical importance, providing the opportunity to transfer appropriate patients and create a 60-bed surgical receiving ward in the public facility.

While providing a range of specialist services, the Hospital's Burns Unit had a capacity for only four patients, the Intensive Care Unit for between six to ten, and the “dated” Emergency Department, had only three resuscitation beds. The capacity of the Intensive Care Unit was artificially expanded to accommodate up to 20 patients, while the Emergency Department expanded into adjoining clinic areas in preparedness.

As the day progressed, close communication was maintained with emergency services and a variety of local government and non-Government agencies. It became obvious that Defence, Customs, the Federal Police, and a number of national bodies were also critical to the Hospital's response. A delay of more than 24 hours between the bomb blasts and the arrival of the first casualties was a valuable asset, only in so much as the opportunity was seized to enhance preparedness.

At 1:40am on Monday 14 October, the first 14 victims arrived (tragically a fifteenth had died en-route). Over the next 12 hours, more than 60 critically injured victims arrived in four waves at the Royal Darwin Hospital Emergency Department. Of those casualties, 52 were considered to have burns severe enough to require admission to a major burns unit and virtually all the victims had multiple trauma.

While best efforts had been made in Bali, patients were significantly under-resuscitated. Little was available in the way of resources or equipment, and immersion in the chlorinated swimming pools of hotels was often the only treatment for the severely burned. The efforts of those on site were certainly bolstered by the arrival of the first RAAF Team early on Sunday evening. Clearly, critically injured victims had now waited for many hours, receiving little but the most rudimentary attention.

The injuries sustained were those of blast and shrapnel, of crush and firestorm, of shock, sepsis and dehydration, and later on of metabolic and renal challenge, and of burns infections caused by multi-resistant bacteria not normally seen in Darwin. While at one point, 18 simultaneous trauma resuscitations occurred in the small Emergency Department, the staff were never “out resourced.” Theatres worked around the clock, and every patient was meticulously logged and tracked by the administrative staff. While Emergency and Intensive Care teams triaged, assessed, and resuscitated; surgeons operated, and physicians restored metabolic balance.

The response was that of a professional team, and within 36 hours of commencement, a planned evacuation to other centres throughout the nation had commenced.

By late on the evening of 15 October 2002, only seven patients remained within the hospital, with an additional trickle presenting over the next few days.

With the departure of the last major cohort of patients, an almost anti-climactic mood fell upon the Hospital. Day to day activities almost seemed mundane and trivial as so much had happened in such a short period of time.

The next challenge had only just begun. Debriefing and counselling were addressed, and a tired workforce was rested.

Of interest and significance, is that during this turbulent period, the non-related, acute activities of the hospital continued, almost uninterrupted, and immediately following the response, it was “business as usual.”

Following the Bali bombings response, a full day workshop was held to assess aspects of the response, both strengths and weaknesses. The review process also encompassed aspects of debriefing for staff involved.

The plan itself had provided a robust inter-hospital template, however, it was shown that communication with some external agencies could be improved, and consequently this has been enhanced.

Conclusion
Of course no incident of such magnitude will always go exactly to plan. Ongoing training and education in emergency responses is essential for Emergency Management Committee members to develop a broad understanding of disaster preparedness and response, with testing of plans and staff training also being required to ensure a planned, efficient and focused response can be made to any real or potential internal or external hospital emergency.

Authors
As Nursing Director for the Division of Surgery at Royal Darwin Hospital, Carol was Chair of the Emergency Management Committee which oversaw the development of the internal and external emergency plans that were established prior to the bombings in Bali in 2002. In 2004 while working as Principal Nurse Consultant with the NT Department of Health and Community Services, Carol was recognised for her involvement in the development of these plans as winner of the Telstra Business Women's Awards TMP/Hudson Community and Government Category. After working for the past few years in project management Carol is currently employed as Manager of the Nurses Board of the ACT.

Dr Len Notaras has been the Medical Superintendent of the Royal Darwin Hospital for more than ten years, and Senior Medical Director in the Northern Territory. He has a range of career experiences and qualifications which include the military, law, and medicine, and was involved in the Newcastle earthquake response, the 1999 Timor response, and more recently, as regional Medical Disaster Coordinator, in the preparations for tropical Cyclone Thelma.
Critical infrastructure protection and the role of emergency services

by Mike Rothery, Assistant Secretary, Critical Infrastructure Protection Branch, Attorney-General’s Department

Introduction

Since Al-Qaeda’s attacks on the USA on 11 September 2001, protecting critical infrastructure from terrorist attack has become a high priority for the Australian Government. There are other factors, however, that need to be taken into consideration as they can seriously affect critical infrastructure.

As most of Australia’s critical infrastructure is privately owned or operated it has been essential to build a partnership between business and government to ensure critical infrastructure is adequately protected, not just from terrorism, but from all hazards, be they flood, fire, or a tsunami such as the one that devastated our close neighbours so recently.

The Australian Government regards emergency services as essential government services that form part of Australia’s critical infrastructure. Australia’s emergency services, police, ambulance, fire, State Emergency Services, both volunteer and professional organisations, as well as non-government organisations such as the Red Cross are represented in the Trusted Information Sharing Network for Critical Infrastructure Protection (TISN).

The TISN is not an operational network, but is concerned with policy issues in a medium-to-long term timeframe. It plays a key role in protecting Australia’s critical infrastructure by allowing members to share security-related information in a secure environment. Through its peak committee, the Critical Infrastructure Advisory Council, TISN members have a direct line of communication to the Attorney-General, and to the National Counter-Terrorism Committee.

As the Bali and Madrid bombings illustrated, terrorists also target large crowds, which is why the Australian Government treats the owners and operators of these types of events and venues in a similar way as the owners and operators of critical infrastructure.

Critical Infrastructure Protection has become a general label for a range of activities undertaken jointly by government and the operators of key locations, facilities and systems to ensure they are adequately managing risk. These initiatives cover three main categories:

• critical infrastructure assets—those assets or systems deemed more likely to be targeted because of the downstream impact of a successful attack, or where the consequences would be intolerably severe, or some combination of the two;
• places of mass gathering—those types of sites where large numbers of people congregate, such as those terrorists have previously targeted overseas, and
• information infrastructure—the possible exploitation of the inherent vulnerabilities in computer and communication systems so as to bring about failure in critical systems, or the loss or compromise of data.

The Emergency Services sector falls into the category of “critical infrastructure assets” because it is a key system providing an essential service.

Defining critical infrastructure

The term “critical infrastructure protection” has been around for some time. Originally it was used to describe mission critical IT systems in the Y2K context. Its usage has since grown to include other work such as “vital assets” and “lifelines”. At the core of this work is some form of value judgement about importance or criticality, often measured in terms of the downstream effects of a particular incident.

From a national perspective, the Australian Government defines critical infrastructure as:

“those physical facilities, supply chains, information technologies and communication networks that, if destroyed, degraded or rendered unavailable for an extended period, would significantly impact on the social or economic well-being of the nation or affect Australia’s ability to conduct national defence and ensure national security.”

Some critical elements in these sectors are not strictly speaking infrastructure, but are in fact networks or supply chains that support the delivery of essential products or services. For example, bringing food from the paddock to the plate is dependent not only on particular key facilities, but also on a complex network of producers, processors, manufacturers, distributors and retailers. Where an incident involving these networks could have a significant impact, those networks are treated as critical infrastructure.
The Emergency Services sector is classed as critical infrastructure, not only in terms of specific assets such as control centres, but also in terms of its supporting communication networks, such as 000.

Some types of critical infrastructure depend on other forms of infrastructure being available, while some sectors are mutually dependent on each other. The degree and complexity of interdependencies is increasing as Australia becomes more dependent on shared information systems and convergent communication technologies, including the Internet.

Protecting such a wide range of critical infrastructure is an enormous task. In addition, up to 90 per cent of Australia’s critical infrastructure is owned or operated by the private sector.

The Government believes that adequate and appropriate security is best achieved by building a strong partnership between it and the private sector and other levels of government, based on trust and a willingness to share information about security-related issues—not just problems, but solutions.

The National Counter-Terrorism Committee and the role of the States and Territories

The National Counter-Terrorism Committee (NCTC) is the primary body for developing Australia’s national counter-terrorism arrangements. The committee includes the deputy commissioners from each State and Territory Police service and senior representatives from premiers’ and chief ministers’ departments. It is chaired by the Department of the Prime Minister and Cabinet and includes senior representatives from the Department of the Prime Minister and Cabinet, the Attorney-General’s Department, Emergency Management Australia, the Department of Defence, Australian Federal Police, Australian Security Intelligence Organisation, the Department of Transport and Regional Services and other relevant agencies.

The NCTC has recently developed National Guidelines for Protecting Critical Infrastructure from Terrorism. These guidelines provide a nationally consistent approach for Australian governments to provide advice to the owners and operators of critical infrastructure on the protection of their assets from terrorism. They provide suggested actions to be considered in response to the security environment and address topics such as risk assessments, public information and media management, prevention and preparedness and response and recovery.

The guidelines set out the roles and responsibilities of the Australian, State and Territory and local governments, police, and owners and operators of critical infrastructure in protecting from terrorism.

State and Territory governments are responsible for distributing the guidelines, as they have identified which infrastructure is critical within their jurisdiction. Similarly, they are primarily responsible for the prevention of, and response to, incidents threatening the security of businesses within their jurisdiction. They are currently developing and implementing frameworks, in co-operation with the business community, to apply the guidelines within their jurisdictions. It is through these relationships that the essential counter-terrorism message will be delivered to business.

The National Committee on Critical Infrastructure Protection (NCCIP) is the dedicated standing committee that coordinates critical infrastructure protection policy development across all levels of government. The committee comprises Australian and State/Territory government representatives as well as a representative from the Australian Local Government Association. This mechanism ensures greater awareness within and between governments of CIP initiatives.

Business–Government Task Force on critical infrastructure protection

The terrorist attacks on the USA on 11 September 2001 brought the Australian Government’s policy on critical infrastructure protection sharply into focus. In November 2001 the Prime Minister announced the formation of the Business–Government Task Force on Critical Infrastructure. The Task Force was given the mission of examining what needed to be done to ensure Australia’s critical infrastructure was adequately protected.

The Task Force meeting in Sydney on 21–22 March 2002 brought together senior executives from some of Australia’s major corporations, representatives from various utilities, State and Territory governments and a range of interested Commonwealth agencies.

That meeting produced a list of six recommendations provided in the accompanying box. These recommendations were accepted by the Government in November 2002.

---

1 The National Counter-Terrorism Committee’s National Guidelines for Protecting Critical Infrastructure from Terrorism is not a public document. A fact sheet on the Guidelines is available at http://www.tisn.gov.au or from the Attorney-General’s Department Critical Infrastructure Branch (ph: 02 6272 7100 or email cip@ag.gov.au).

2 The Task Force’s report and other background documents are available from http://www.tisn.gov.au or from the Attorney-General’s Department Critical Infrastructure Protection Branch (ph: 02 6272 7100 or email cip@ag.gov.au).
**Task force 2002 recommendations**

1. The Commonwealth and the States and Territories, in consultation with the private sector, should develop a strategic overview of risks to critical infrastructure and, as a first step, commit to prioritisation of tasks building on the work that has already been done to assess vulnerabilities in the telecommunications, transport and public utilities sectors, by 30 September 2002.

2. The Commonwealth, in co-operation with the private sector and the States and Territories, should build on existing mechanisms, such as the Standing Advisory Committee on Commonwealth-State Cooperation for Protection Against Violence (SAC-PAV) and arrangements for emergency management, to ensure systems and procedures are in place to adequately protect the critical infrastructure.

3. The Commonwealth should build a learning network among the key public and private sector organisations to improve systematic, strategic responses to the security of the National Information Infrastructure—separate from, but linked to, physical critical infrastructure protection and SAC-PAV.
   - The network should have a clear brand, clear responsibilities, protocols, priorities and a central point of contact for authoritative statements, but should also have redundancy and linkages to key international resources.
   - A public/private sector partnership to enhance national information infrastructure assurance should be developed out of this Business-Government Task Force for periodic consultation and advice to the network.
   - AusCERT should be strengthened as a central component of a national system for early warning and advice on immediate response and risk management. Issues to be discussed include funding and whether their advice would continue to be available for a fee only to member organisations, as at present.
   - The Commonwealth, in consultation with the private sector, should examine major threats and interdependencies in telecommunications and banking as an example of specific, targeted consideration between the relevant agencies and organisations.

4. The Commonwealth, States and Territories should review their legislative frameworks for sharing information so as to facilitate the supply of information by business, ensure its confidentiality and exclude liabilities.

5. The Commonwealth should develop models of good critical infrastructure assurance, taking into account relevant standards, in consultation with the private sector and the States and Territories.

6. The Commonwealth, States and Territories should examine ways to encourage investment in the security and resilience of critical infrastructure.
Trusted Information Sharing Network for Critical Infrastructure Protection

The Attorney-General’s Department hosted a summit on critical infrastructure protection in Melbourne in April 2003. The summit brought together representatives from industry, State and Territory governments and Australian Government agencies. The Australian Local Government Association also attended, representing its members. The role of emergency services in critical infrastructure protection was acknowledged by the attendance of a number of representatives from emergency services organisations.

It was at this summit that the then Attorney-General, Daryl Williams, launched the Trusted Information Sharing Network for Critical Infrastructure Protection (TISN), which was formed as a direct result of the Task Force’s recommendations.

Following is a brief overview of the different areas of the TISN, their structure, roles and responsibilities.

Infrastructure Assurance Advisory Groups

The Infrastructure Assurance Advisory Groups (IAAGs) have been created to allow the owners and operators of critical infrastructure to share information on threats and vulnerabilities and appropriate measures and strategies to mitigate risk. By having agencies from both the Australian Government and the States and Territories participating or involved, industry can be briefed on government activity. To date, groups have been established for the banking and finance, communications, emergency services, energy, food chain, health, icons and public gatherings, transport and water services sectors. The structure is, however, flexible to allow new groups to join as and when necessary.

Critical Infrastructure Advisory Council

The Critical Infrastructure Advisory Council (CIAC) oversees the IAAGs and advises the Attorney-General on the national approach to critical infrastructure protection. It reports directly to the Attorney-General.

Members are drawn from each sector group, each of the States and Territories, relevant Australian Government agencies and the National Counter-Terrorism Committee. The committee is chaired by the Attorney-General’s

Figure 1. The current TISN structure
Department. The current chair is Miles Jordana, Deputy Secretary, National Security and Criminal Justice Group. This committee provides the crucial link between the TISN and the counter-terrorism community.

**TISN's focus**

TISN does not have an operational focus and does not replace existing response and operational emergency services mechanisms. It is primarily a consultative and co-ordination body for policy issues surrounding critical infrastructure protection. The TISN brings a national focus to the subject area. Much of Australia’s critical infrastructure, such as electricity and communications cables, and food and health supply chains, cross jurisdictional boundaries. It is therefore important that the operators of these infrastructure assets have a forum in which to discuss a national approach to these issues.

**Responsibilities of owners and operators**

Owners and operators of critical infrastructure are responsible for:

- providing adequate security of their assets,
- actively applying risk management techniques to their planning processes,
- conducting regular reviews of risk management assessments and plans,
- reporting any incidents or suspicious activity to State or Territory police,
- developing and regularly reviewing business continuity plans; and
- testing their plans by participating in any exercises conducted by government authorities.

Owners or operators need to have sound risk management and business continuity strategies in place, taking into account that being part of Australia’s critical infrastructure can in fact increase the risk of attack on their assets.

Although the threat posed by a terrorist attack has a high priority in assessing the risk to critical infrastructure assets, owners and operators need to take an “all hazards” approach. This involves examining different types of threat likely to affect their business, such as natural disaster, accident, human error, and poor maintenance.

Emergency services and the emergency management organisation have a significant role to play in assisting owners and operators of critical infrastructure in developing emergency management plans which, along with security plans, form an important element of their risk management and business continuity strategies. Emergency services also have a role in testing and reviewing emergency management plans and in many cases have established close working relationships with infrastructure owners and operators.

Sound business continuity planning can ensure that a business can minimise interruption to its services, and consequently minimise economic loss.

**The Attorney-General’s Department**

There are three areas of the Attorney-General’s Department with critical infrastructure protection responsibilities.

The Critical Infrastructure Protection Branch is responsible for the development and coordination of the Australian Government’s policy as well as international liaison. The branch has four sections—Critical Infrastructure Policy, National Information Infrastructure, Major Projects, and National Security Business Partnership. It serves as a co-ordination point for liaison between the TISN sector groups and provides secretariat services to the Critical Infrastructure Advisory Council, and the banking and finance, icons and public gatherings and water services sector groups.

The two major projects currently being undertaken by the branch are the Computer Network Vulnerability Assessment (CNVA) project and the Critical Infrastructure Protection Modelling and Analysis project.

The CNVA Program has been developed to support the TISNs work. It has two components—one for the private sector and another for the public sector. The Attorney-General’s Department is responsible for the private sector component while the Defence Signals Directorate is responsible for the public sector component. The private sector component involves working with critical infrastructure owners and operators to identify major vulnerabilities in their computer systems and interdependencies between connected computer networks. It will also test the systems’ abilities to resist exploitation.

The overall aim of the Modelling and Analysis project is to develop a capability to model, simulate and analyse the primary interdependencies between national critical infrastructures and the flow-on consequences of a critical infrastructure failure in a particular sector.

Emergency Management Australia and the Protective Security Coordination Centre are also part of the Attorney-General’s Department.

Emergency Management Australia is the Commonwealth Government agency which has responsibilities in relation to protection of life and property resulting from the impact of natural, technological and human caused disasters.

The Protective Security Coordination Centre manages the Government’s protective security responsibilities and performs a coordination role in marshalling resources in preventing, or responding to, threats to Australia’s national security. It maintains close working relationships with all
Emergency services and the TISN

The Emergency Services Infrastructure Assurance Advisory Group represents the sector in the TISN. Its members are drawn from relevant Australian Government agencies, State and Territory emergency services, emergency services national peak bodies and the Australian Red Cross. The group is chaired by the Director General of Emergency Management Australia, Mr David Templeman, who is also a member of the Critical Infrastructure Advisory Council, the National Counter-Terrorism Committee and the Australian Emergency Management Committee. This provides an invaluable cross-linkage between the various agencies involved in counter-terrorism, critical infrastructure protection and emergency management.

The group centres its activities on ensuring continuity of service provision by the emergency services. To date it has shared information on a range of issues including identification of critical emergency services infrastructure, risk assessment tools and methodologies, threats and vulnerabilities, mitigation strategies, treatment options and interdependencies with other industry sectors. It has also held a discussion exercise examining dependencies and interdependencies on other industry sector groups.

Its forward work program includes work on defining the emergency services critical infrastructure and the development of emergency services-specific preparedness guidelines for each counter-terrorism alert level, based on the model outlined in the National Guidelines for Protecting Critical Infrastructure from Terrorism.

In 2004 the group was involved in a discussion exercise conducted by the TISN. This exercise broadly examined the interdependencies between different sectors in a scenario which had Victoria suffering a prolonged major disruption to its electricity supply.

The exercise proved invaluable in challenging assumptions in all sectors about the availability of back up resources including generators, water and fuel supplies.

Conclusion

The emergency services sector forms part of Australia’s critical infrastructure. Through its involvement in the Trusted Information Sharing Network for Critical Infrastructure Protection it is able to share vital information on security issues with other critical infrastructure sectors. Its representation on the Critical Infrastructure Advisory Council helps inform that body in its input into the National Counter Terrorism Committee and the Council’s advice to the Attorney-General.

Further information about critical infrastructure protection can be found on the TISN website—www.tisn.gov.au, or by contacting the Attorney-General’s Department Critical Infrastructure Protection Branch (email: cip@ag.gov.au, phone: 02 6272 7100).
Local Grants Scheme and National Emergency Volunteer Support Fund

Working together to manage emergencies

Introduction
As a nation, Australia has a proud and longheld tradition of pulling together in times of adversity. Nowhere is this more apparent than in the emergency services sector where Australians from all walks of life make enormous personal sacrifices to work in frontline organisations in times of national emergency.

Australia is a nation prone to a range of natural hazards, including fire, flood, heatwave, severe storm, cyclone and earthquake. On average, each year 50 people lose their lives as a direct result of natural disasters, some 1500 are injured and up to 250,000 are affected in some way. The economic cost to communities is around $3 billion annually. In more recent times the threat to Australia from terrorism has become more apparent and must now be considered along with other disasters.

The Australian Government policy initiative “Working Together to Manage Emergencies” recognises the need to develop self-reliance at both the community and local government levels. We are keen to marshal the commitment and enthusiasm of local communities in order to build our national preparedness for disasters of all types by providing practical support and recognition.

I encourage eligible organisations to submit an application.

Philip Ruddock, Attorney General

About the programs

Local Grants Scheme
The Local Grants Scheme is intended to enhance the capability of communities to prepare for, respond to and recover from disasters and emergencies arising from any hazard. The scheme will provide funding to assist communities to develop and implement community emergency risk management initiatives, enhance protective measures for critical infrastructure and provide emergency management and security awareness training for local government staff.

National Emergency Volunteer Support Fund
In the event of an emergency or disaster, whether natural, human-caused or technological in origin, Australia’s national emergency services volunteer pool will play a significant role in assisting the community to respond to and recover from the effects of such events. The National Emergency Volunteer Support Fund will support projects developed to boost the recruitment, skills and training of volunteer organisations at the frontline of emergency management within the guidelines established by the State and Territory emergency management authorities, fund capital equipment.

Who is eligible?

Local Grants Scheme
Organisations eligible to apply for funding under the Local Grants Scheme are those which can be defined as a community i.e; a group with a commonality of association and generally defined by location, shared experience, or function. In the context of this scheme, community includes remote and indigenous communities and local councils.

National Emergency Volunteer Support Fund
Funding is available to Australian Emergency Management Volunteer Forum member agencies and any other agencies that have a defined role in State or Territory Response or Recovery Plans. Accordingly, eligibility may vary slightly between States and Territories.
What is eligible?
Detailed eligibility criteria for the Local Grants Scheme and the National Emergency Volunteer Support Fund are contained in the “guidelines” which can be found on the EMA website (www.ema.gov.au/communitydevelopment) however the following general provisions apply:

Local Grants Scheme
Priority will be given to projects submitted by communities which seek funding for particular strategies that develop and promote effective community preparedness, response and recovery initiatives, undertake appropriate protection measures for critical infrastructure and provide emergency management and security awareness training.

Proposals for work on initiatives in all other areas of emergency management which will result in enhanced community safety are also encouraged and will be considered in competition with other applications received.

National Emergency Volunteer Support Fund
Priority will be given to projects submitted by agencies which seek funding for particular strategies that will enhance recruitment, retention and training of volunteers in emergency management agencies.

How to apply
Local Grants Scheme
Applications for funding under the Local Grants Scheme are sought nationally on an annual basis. Application forms are available electronically from the EMA website (www.ema.gov.au/communitydevelopment).

Completed application forms should be sent to the State/Territory Selection Committee for consideration in the first instance. The State/Territory Selection Committee will assess all applications to ensure they fall within the intent of the Scheme and are consistent with the principles as outlined in the guidelines.

All applications meeting the criteria will be ranked according to State/Territory priorities and forwarded to EMA to be consolidated into a single national priority list for consideration and decision by the Australian Government Attorney-General.

National Emergency Volunteer Support Fund
Applications for funding under the National Emergency Volunteer Support Fund will be sought on an annual basis.

Applications are to be developed using the appropriate form available electronically from the EMA website (www.ema.gov.au/communitydevelopment).

Completed application forms should be sent to emergency management parent organisations for consideration. The parent organisation’s prioritised list will be sent to the State/Territory Selection Committee for review in competition with other applications received.

All applications meeting the criteria will be ranked according to State/Territory priorities and forwarded to EMA to be consolidated into a single national priority list for consideration and decision by the Australian Government Attorney-General.
Further information

For more information about the Local Grants Scheme or the National Emergency Volunteer Support Fund, visit www.ema.gov.au/communitydevelopment or contact State/Territory Selection Committee representative.

New South Wales
Brendan Beckett
PO Box A792
SYDNEY SOUTH NSW 1235
T (02) 8247 5913
F (02) 9252 9168
E Brendan.Beckett@oes.nsw.gov.au

South Australia
Ross Pagram
GPO Box 2343
ADELAIDE SA 5001
T (08) 8204 9374
F (08) 8204 9530
E pagram.ross@saugov.sa.gov.au

Queensland
Alan White
GPO Box 1425
BRISBANE QLD 4001
T (07) 3247 8461
F (07) 3247 8475
E awhite@emergency.qld.gov.au

Tasmania
Chris Beattie
GPO Box 1290
HOBART TAS 7001
T (03) 6230 2772
F (03) 6234 9767
E Chris.Beattie@ses.tas.gov.au

Australian Government
Local Grants Scheme
Janelle Keyes
Emergency Management Australia
GPO Box 1020
DICKSON ACT 2602
T (02) 6256 4623
F (02) 6256 4653
E cd@ema.gov.au

Australian Capital Territory
Patricia Duggan
PO Box 104
CURTIN ACT 2605
T (02) 6207 8792
F (02) 6207 8723
E Patricia.Duggan@act.gov.au

Australian Government
National Emergency Volunteer Support Fund
Helen Price
Emergency Management Australia
GPO Box 1020
DICKSON ACT 2602
T (02) 6256 4736
F (02) 6256 4653
E cd@ema.gov.au

Victoria
Jude Laurence
GPO Box 4356QQ
MELBOURNE VIC 3001
T (03) 9651 1258
F (03) 9651 0356
E Jude.Laurence@justice.vic.gov.au

Northern Territory
Michael Bowman
PO Box 39764
WINNELLIE NT 0821
T (08) 8922 3639
F (08) 8947 2162
E Michael.Bowman@msexchange.ples.nt.gov.au

Western Australia
James Butterworth
PO Box P1174
PERTH WA 6844
T (08) 9323 9580
F (08) 9323 9462
E jbutterworth@fesa.wa.gov.au
During 4–6 April 2005, I was an observer at Exercise Top Officials 3 (T3) that was conducted on the east coast in the United States. T3 was the third in a series of US congressionally mandated homeland security exercises conducted every two years to practice response to Weapons of Mass Destruction (WMD) incidents. This year participation included Canada— their activity titled Ex Triple Play, and the United Kingdom with Exercise Atlantic Blue. T3 was quoted as being the largest Homeland Security exercise conducted by the US with over 8000 participants at a cost of $16 million. The exercise included a number of lessons that should be considered in Australia’s preparations for Chemical, Biological and Radiological (CBR) incidents.

T3 incorporated significant intelligence play that started some months before the actual deployment phase from 4–7 April 2005. The exercise involved two main incident scenarios based on a vehicle bomb and chemical warfare agent (simulated Mustard Gas) release at New London, Connecticut, and a release of Pneumonic Plague in Newark, New Jersey.

Exercise control was facilitated through Venue Control Centres (VCC) located at New London, while Newark New Jersey linked back to a Main Control Centre in Washington DC. Exercise control centres were also located in Ottawa, Canada and in London, England. Venue control centres had approximately 75 staff per shift and included representatives from the key participating agencies.

An important feature of the exercise was the use of the Virtual News Network (VNN) to broadcast information on the incidents. VNN was the exercise television and radio network that broadcasted live eight hours a day. Real-time broadcasts from senior Federal and State government officials including the Secretaries of the Department Homeland Security, Health and Human Services, as well as senior State politicians were accessible through the password-protected internet site. The broadcasts provided real-time information and breaking news as the incidents unfolded adding realism to the exercise. Media interviewers posed some very penetrating questions that would be expected during a real terrorist event. VNN was also used by Canada (CVNN) and the UK (BNN).

The incident in New London, Connecticut was a result of a terrorist organisation believing its intended operation in Boston had been compromised and therefore relocating to an alternate target at New London. The activity involved the detonation of a vehicle bomb at a county carnival resulting in mass casualties of some 500 people. This was immediately followed by the detonation of a large container of Mustard Blister agent by a suicide bomber that contaminated the mass casualty incident site. This was followed a day later by an overflight of a small plane also spraying Mustard agent.

Responders were faced with victim rescue in a contaminated environment and the potential downwind impact of a persistent and delayed action chemical warfare agent. Casualties were rescued and underwent a decontamination
The process and a range of public protection measures, including sheltering in place were implemented. Area monitoring to determine dirty and clean areas was time consuming and resource intensive and additional federal resources were required. Large quantities of personal protective equipment were required in response to the incident.

The incident in Union County, New Jersey, near Newark's major international airport involved the release of Pneumonic Plague by terrorists along the New Jersey highway adjacent to major convention venues. Victims became symptomatic within a few days and began presenting at hospitals. This resulted in the activation of the United States Strategic National Stockpile, which includes a range of pre-packaged antibiotics that can be shipped to stricken areas within 12 hours of request. The stockpile was transported to a New Jersey National Guard base for use by State health authorities.

I had the opportunity to observe the activities at Union Hospital in Newark that was being exercised. Patients were triaged on arrival and medically treated in emergency facilities set up outside the hospital, with the most serious cases being treated in an isolation ward. We were briefed by the Hospital's CEO and were taken on a guided tour of the hospital facilities. The tours were very professional and included the Hospital Emergency Operation Centre (EOC) that co-ordinated the activities relating to the emergency.

The hospital, as part of the US Homeland security finding program, had received specialised equipment including tents, ventilators and hospital ward facilities to establish sheltered facilities adjacent to the Hospital. Security was tight, with the area cordoned off by State police securing the perimeter around the hospital. The hospital had a comprehensive emergency plan including an EOC based in a staff room that could be quickly converted. It included the basic equipment of phones, faxes, computers, white boards and detailed standing operating procedures to co-ordinate the incident.

Hospital staff were trained for their emergency-related tasks and the hospital had a 'surge capacity' plan to recall staff and divert patients when saturation point was reached. The hospital had a range of emergency equipment to quickly respond to a mass casualty emergency. In a nutshell they appeared to have their 'act together'.

The other activity observed was the functioning of a Point of Distribution (POD) facility established to dispense antibiotics to people potentially exposed to Pneumonic Plague. The POD was established in a primary school assembly hall and could process 90–100 people each hour. People were initially screened on arrival including using a magnetometer for weapons. The seriously ill were diverted to the medical treatment facility located at the POD. Others were directed to a registration
The logistic effort for the provision of PODs is extensive. The exercise scenario included up to 100 000 potentially effected persons requiring the issue of antibiotics within 24 hours. Based on a POD throughput of 100 per hour, a 24 hour period equates to 2400 people. For 100 000 personnel, the requirement would be some 25 PODs at a staff level of 100 each POD. This poses a challenge to State Health Departments that may have to establish similar arrangements at very short notice. The need for federal assistance should not be discounted.

T3 was a major undertaking by the US with participation by Canada and the UK. It is anticipated that the US will release a post exercise report in July 2005, which should be considered essential reading by those responsible for planning related to CBR incidents. There are a number of lessons to take away and consider that will help Australia be better prepared for CBR type incidents.

Since the devastation of the Twin Towers in New York on September 11 2001 many countries around the world have instituted significant new initiatives designed to maximise national, community and individual safety, sustainability and well being.

In the United States, the Federal Government has responded to the heightened terrorist threats with a number of major campaigns of which the pre-empive wars in Afghanistan and Iraq have engaged the attention and concern of the world.

Less well known have been the homeland’s security capabilities and endeavors of many countries, which are aimed at proactive preparedness against malevolent terrorist and other acts. In the field of natural hazards, such as hurricanes, tornados, fires and floods, the work of FEMA in the USA and EMA in Australia are prominent and highly regarded.

The US Department of Homeland Security, inaugurated by President George W. Bush, has the additional task of, inter alia, helping society take preventative measures against the enhanced likelihoods of the use of biological, chemical and nuclear weapons of mass destruction (WMDs). One of DHS’s resources is a well-conceived and implemented site on the World Wide Web—www.ready.gov.

Ready.gov is a common sense framework designed to launch a process of learning about citizen preparedness. One of the primary mandates of the U.S. Department of Homeland Security is to educate the public, on a continuing basis, about how to be prepared in case of a national emergency—including a possible terrorist attack.

Ready.gov focuses upon three main domains Ready Business, Ready America (Individuals and Family) and Ready Children (under preparation). The material presented covers readily downloadable documents concerning the nature of the principal WMD threats and their dysfunctional impacts.

It is also a further succinct source of information about coping with natural disasters. There are checklists for preparing counter-measures against the designated threats and the timely preparation of Ready Plans with their associated activities. These include:

• safeguarding data and documents;
• assembling first aid kits;
• communications and transportation;
• essential survival foods and water supplies;
• establishing local area networks; and
• knowing the nature and locations of community and government emergency management resources.

There are pertinent posters about the key domains and even a short radio message intended for local broadcast. There is no doubt about the value of such a site for communities around the world, particularly as it uses the English language which is widely used and understood.

WEBSITE REVIEW

by Dr Allan Sketchly

Ready.gov is a common sense framework designed to launch a process of learning about citizen preparedness. One of the primary mandates of the U.S. Department of Homeland Security is to educate the public, on a continuing basis, about how to be prepared in case of a national emergency—including a possible terrorist attack.
The messages conveyed are those of straightforward survival after a disaster and are broadly applicable to all humankind. Countries without similar homeland security resources might economically make translations into their own tongues. Within a short time all material can be downloaded and available on PCs throughout the world. The real question is how best to use such information and know-how? The material is generic and needs to be applied and adapted to local community needs.

Although pitched at individual organisations, families and people, the greatest value of a website like Ready.gov is to use it collaboratively as an invaluable source of counter-disaster skillling and leading edge homeland security know-how.

The 20th century witnessed many effective communitarian examples of institutions devoted to fostering community safety and well-being. The Home Guard, Civil Defense, Neighborhood Watch, Bush Fire Brigades and FEMA and EMA, are notable examples. In many parts of Australia there already exists well-established agencies countering the effects of natural hazards and disasters. Coping with WMDs could be readily incorporated with these. Recent initiatives of COAG will do much to augment these.

“Now, more than ever, we posses the power to reshape our surroundings—to mould our planet to suit our interests...In the dawn of the third millenium we’d best take stock of ourselves and develop strategies to preserve our fragile environment. Moreover, we must try to eliminate warfare in all its forms: nuclear, chemical, biological and conventional.” Countdown To Apocalypse Paul Halperin 1998.

Author
Allan Skertchly lives in Darwin and is Principal Consultant with Success Management International Learning Enterprises—SMILE, where he specialises in hazard mitigation. In collaboration with the environmental scientist Kristen Skertchly, he has undertaken a number of emergency management studies for the Northern Territory and Australian governments, including those on the Cyclone preparedness for the Greater Darwin Region and the remote coastal, predominantly Aboriginal, communities; the 1998 Katherine-Daly River Flood; and Critical Infrastructure and Lifelines across the Northern Territory. These studies have been widely recognised, including the gaining of a number of Emergency Management Australia Safer Communities Awards.
Investigation into the feasibility of a demountable flood and drainage demonstration model for education of school children

Daniela Heubusch – Strategic Flooding & Drainage Engineer, Shoalhaven City Council

Flooding in Australia causes the highest costs in annual damages out of any natural disaster and regularly claims the lives of children. While there are many brochures informing residents of flood prone land about the danger of flood waters, such information leaflets often end up in the rubbish, especially during times of drought, when the thought of floods is too far removed from people’s minds.

The reality however is that more and more people move closer to the water, be it rivers or coastal plains, and thus expose themselves to risk to life and property. It is vital to educate future inhabitants of these areas in a way that they will never forget how to react in times of flooding.

In order to offer residents and children in particular, a hands-on memorable “flood experience” the concept of an artificial river into which people could step to feel the force of water was developed. Research showed that no similar practical flood education tools currently exist in Australia.

Shoalhaven City Council received grant funding from Emergency Management Australia to investigate the feasibility of constructing a river model capable of showing the impact of rising floodwaters travelling down an artificial watercourse (see Picture 1). The model could be installed at any commercial swimming pool. Council staff worked closely with the University of NSW Water Research Laboratory to investigate possible options of how to achieve the set objectives of the study.

The final design (see figure 1) was based on a worldwide search of results from research into stability of humans in flowing water as well as consultation with experts in numerous fields, such as schoolteachers, SES, State Government agencies, pool operators and floodplain engineers. Sufficient guidelines for an education package, OH&S requirements, set up and running of the model have also been developed.

The model and accompanying education materials could be packed into a customised trailer and easily transported to any community in Australia.

The study has been a very interesting and successful exercise and a workable design for the physical model has been achieved. It has become apparent
during the project, that the concept outgrew its initial intentions of providing “some fun” to a local flood education campaign. Instead, if further funding for the implementation phase can be secured, the potential exists for a nationwide educational initiative.

At the time of writing, several organisations have expressed interest in partnering a national campaign to greatly contribute to Australian Flood Education Programs and will eventually save lives.

For further information contact Daniela Heubusch, Shoalhaven City Council, on 02 4429 3354.
Community awareness

Following on from the events of 26 December, a review of the existing EMA Earthquake/Tsunami brochure was undertaken resulting in the contents being separated so that each event is now described in its own publication.

Tsunami – an A3 fold-out colour pamphlet developed by Geoscience Australia and the Bureau of Meteorology in partnership with EMA, will be available soon. The pamphlet will contain information on how a tsunami forms and where they are likely to occur in Australia. The pamphlet also introduces the Australian Tsunami Alert Service (ATAS).

Earthquake, is also being revised in partnership with Geoscience Australia, the Bureau of Meteorology and EMA. It is anticipated that the revised brochure will be available for distribution by the end of the year.

Copies of the brochures are available from EMA.

For further information contact Cate Moore
Phone 03 5421 5296; email cate.moore@ema.gov.au

Australian Emergency Manual series

The second edition of the Australian Emergency Manual Series on CD is now available. This edition includes all of the best practice and guideline manuals as currently available on the EMA website. The CD features a hyperlinked contents page that will take the user direct to the manual of interest. To assist in ease of navigation each manual is also bookmarked.

Copies of the CD are available from EMA.

For further information contact Cate Moore
Phone 03 5421 5296; email cate.moore@ema.gov.au

AusDIN Working Group

The AusDIN Working Group met in May to consider the discussion paper circulated in December 2004. This paper proposed that AusDIN support AEMC in the development and provision of governance arrangements. These include general emergency management data, information and knowledge and, through a relationships-building approach, optimise sources, eliminate gaps and overlaps and advance the use and effectiveness of emergency management information, data and knowledge. The AusDIN Working Group also seeks to develop close relationships with the National Spatial Information for National Security (NSINS) Working Group and assists ANZLIC in the development of an ANZLIC / AEMC joint project. It will also receive reports from the AusDIN Portal Group, EMSINA and ALIES and accept the EM Mapping Report.

AusDIN Portal

The Portal Group met in April to finalise the Communication Plan and Project Plan. The AusDIN Portal Stage 1 is due to go live in June 2005.

EM Mapping Project

Proposed by the AusDIN Working Group in March 2004, this project provides a ‘map’ of all national, Australian Government and State/Territory groups and committees, as well as the relationships and linkages operating in the emergency management and counter-terrorism sector. The first phase included Queensland as a pilot State and it is intended to develop a partnership process with other jurisdictions to complete the process. The project was instigated by EMA in September 2004 with the Report completed in April for presentation to the AusDIN Working Group during May 2005.

EMA websites

The EMA suite of websites has maintained a strong web presence for EMA and provided a vital channel for communication of EMA’s activities. An average of 38,000 visits was maintained over recent months, reflecting the strong community interest in disaster related issues. The secure section of the website, the EMA extranet, is to be revamped with increased functionality and security. This will allow increased use of this feature for agencies and support Education & Training. Other significant changes have been made to the Publications, Education & Training, and Community Information sections of the site.

EMA Disaster Database Enhancement Project

The Interim report for the EMA Disaster Database Enhancement Project has been delivered. It included:

- issues of comparison of the existing design of the EMA Disaster Database with other disaster databases
**KNOWLEDGE MANAGEMENT & BUSINESS CONTINUED**

in terms of event attributes and database query capability;
- a proposed scheme for enhanced disaster event descriptions, in terms of space and time references, disastrous hazards, and disaster impacts (damages, losses and costs);
- some short-term milestones data enhancements; and
- recommendations for establishing and maintaining a comprehensive and integrated disaster database for Australia, with ensured data precision, accuracy and accessibility.

A revision of data for the past ten years will complete the project at the end of June 2005.

**Library**

Australasian Libraries in the Emergency Sector (ALIES) is a co-operative network of libraries which supports the information requirements of the Australasian emergency management community by promoting and facilitating the sharing of information across the 33 diverse member agencies within Australia and New Zealand.

The 2005 ALIES Workshop was held from 21–24 March at Emergency Management Australia's Institute, Mt. Macedon, Victoria. The theme of the workshop this year was Partnerships in Practice and served to further consolidate ALIES into a strong network. Innovation and co-operation in Australasian Emergency Sector Libraries and Information Centres is encouraged and fostered through the ALIES Strategic Direction and Action Plan.

The objectives of the Workshop were:
- to assist libraries to broaden their focus by incorporating knowledge management principles and practices into core business;
- to conduct the ALIES Annual General Meeting (AGM);
- to exchange information on current trends to encourage innovative practices within and between emergency services libraries;
- to discuss and plan marketing strategies for ALIES and individual members;
- to contribute to a better understanding of resources of other emergency services libraries by creating improved access to information and people; and
- to develop strategies for future co-operation between member libraries, parent organisations and government bodies involved with emergency management.

**EDUCATION & TRAINING**

**New material on the school education website**

Following the tsunami in December 2004, EMA worked with State and Territory stakeholders and psychologists to prepare materials to assist school communities to discuss and understand this disaster and its effects. Feedback suggests that this material is also considered suitable for school communities faced with other traumatic events. New learning materials, designed to support middle to senior school students studying tsunamis, is now available on the school education web site.

*For more information contact Melanie Ashby email melanie.ashby@ema.gov.au.*

**EMA Institute 2005 handbook**

In addition to descriptions of current EMA education and training programs and how to access them, the 2005 Handbook provides information on the various education pathways for people working in emergency management. A table showing the links between the Advanced Diploma in Public Safety (Emergency Management) and other public safety qualifications is included. The Handbook is available at [www.ema.gov.au](http://www.ema.gov.au).

**Recovery competency standards**

Workshops to identify the competency standards for recovery management were very well attended due to effective co-operation between the National Recovery Coordinators network and the Emergency Management Sector Working Group. The draft units of competency will be on the EMA website during May.

People with an interest in recovery management are encouraged to view the standards and provide feedback to Andrew Coghlan. Feedback will be incorporated prior to a second round of workshops in July to validate and amend the units of competency.

*For more information contact Andrew Coghlan email andrew.coghlan@ema.gov.au*
EDUCATION & TRAINING CONTINUED

Tsunami assist
Between February and April 2005 the Education and Training Group facilitated a series of debriefs to identify lessons learnt from Australia’s response to the December 26 tsunami. The series included a high level debrief of the Interdepartmental Emergency Task Force, an EMA internal debrief, an operational debrief involving the Australian Government, States and Territories, and private sector agencies, and a debrief of the teams deployed to the region. The lessons learnt will be published in a report to government to be publicly available in due course.

Business continuity management
A Business Continuity Management program designed for people who are responsible for governance and the management of business continuity in their organisation is now available at the Institute. The program, developed in consultation with a number of subject matter experts, addresses the integration of business continuity into organisational business processes. The curriculum will shortly be presented to the Victorian Qualifications Authority for accreditation.

For more information contact Mike Tarrant email mike.tarrant@ema.gov.au.

Research and innovation program
Emergo train, one of the 2004–5 projects has moved into its implementation phase. Emergo train is a disaster medicine simulation which is low technology but has a very strong learning framework. It can be used from simple triage activities right through to the co-ordination of a network of hospitals in a mass casualty event. Real time management of the incident is a major focus of the system. It has been trialed in several small centres and was run in Perth during April 2005.

For more information contact Mike Tarrant email mike.tarrant@ema.gov.au.

DEVELOPMENT

Value Your Volunteers—Emergency Management Volunteers Summit 2005
Following the success of the inaugural National Emergency Management Volunteers Summit in 2001, EMA, on behalf of emergency management volunteers, conducted the Value Your Volunteers—Emergency Management Volunteers Summit 2005 on 6–7 April 2005 at the National Convention Centre in Canberra. It was officially opened by the Hon John Landy, AC, MBE, Administrator of the Commonwealth of Australia, who was welcomed by the Attorney-General, the Hon Philip Ruddock MP.

Value Your Volunteers was the theme for this Summit with the overarching goal being to develop a stronger volunteer sector. It was a resounding success with over 400 emergency management volunteer sector participants from throughout Australia in attendance as nominees of their organisations. Participants took advantage of every opportunity to network and interact with other emergency management volunteers.

To generate greater accuracy, speed and depth in discussions, the Summit used a dedicated conferencing technology called iMEET! It functioned like a series of large ‘electronic flip charts’, to which each group could contribute and which all attendees could view.

Dr Fiona Wood AO, FRACS, Australian of the Year, Founder of the McComb Foundation, Burns Specialist at Royal Perth Hospital (involved with the aftermath of the Bali bombings), delivered the keynote address on Theme One – Drivers for Change. Change is a way of life that the emergency management volunteer sector needs to continually assess to maintain relevance, growth and sustainability.

Major General Brian (Hori) Howard, AO, MC, ESM (Retd), Chair of the Australian Emergency Management Volunteer Forum (AEMVF) delivered the keynote address reporting on progress and achievements since the 2001 Summit. He included a review of recommendations relating to volunteers that are included in the Council of Australian Governments (COAG) Report on Natural Disasters in Australia and the COAG National Bushfire Inquiry.

Mr Len Foster, AO, Chief Executive Officer, Australasian Fire Authorities Council (AFAC) delivered the keynote address on Theme Two – Enhancing Links to Further Benefit Volunteers and Their Communities. The emphasis was that members of the emergency management volunteer sector, as individuals, groups and organisations, need to enhance existing links between communities and their volunteers for greater recognition and support.

Taxation Commissioner, Mr Michael Carmody, launched two new publications for the non-profit
sector—Volunteers and Tax; and Non-Profit Organisations and Fundraising.

A panel of five volunteers from across Australia shared their motivations for volunteering. The panel consisted of Sally Hasler, St John Ambulance, ACT; Ron Carrick, SES, Weipa, far North Queensland; Quentin Turner, Volunteer Fire Brigades, Victoria; Patricia Gillett, Australian Volunteer Coast Guard NSW; and Doug Philpott, Anglicare, Wollongong, NSW.

The Open Forum closing discussion chaired by Professor Paul Arbon, Chief Commissioner, St John Ambulance Australia included Commissioner Phil Koperberg AO, AFSM, BEM, Fire Commissioner, NSW Rural Fire Service; Len Foster, AO, Chief Executive Officer, AFAC; Major-General Brian (Hori) Howard AO MC ESM (Retd), Chair, AEMVF; Sha Cordingly, Chief Executive Officer, Volunteering Australia; and David Templeman, Director General, EMA.

A Summit Report will be published which is expected to contain identified emerging current issues and trends within the volunteer emergency management sector and recommendations and strategies to address the issues identified. The Summit Report will be distributed to political leaders and other stakeholders in the Australian community as well as being widely distributed, in both print and electronic format, to emergency management volunteer sector organisations nationally.

Financial support for the Summit was provided by EMA, the Department of Family and Community Services, Australian Agency for International Development (AusAID), the Australian Taxation Office, and Qantas.

The Summit raised some significant issues for the attention of all levels of Government across Australia. Addressing these issues will form the basis of EMAs future involvement with emergency service/management volunteer sector.

For further information contact Justine Rixon
Phone 02 6256 4612; email justine.rixon@ema.gov.au

Emergency Management Volunteers In Action Photographic Competition

The winners of the Emergency Management Volunteers in Action Photographic Competition were announced during the welcome reception for participants of the 2005 Emergency Management Volunteers Summit on Tuesday 5 April 2005. Attorney-General the Hon Philip Ruddock MP, presented winners and those Highly Commended with their prizes and certificates.

The competition, supported by the Harvey Norman Group, attracted 185 entries in the Amateur/Volunteer Stream and 18 entries in the Professional Stream. All entries had to tell a story – a story of leadership, professionalism, teamwork, camaraderie, and community spirit – bringing the role of volunteers to life. A panel of judges, made up of representatives from the volunteer emergency management community and the photography profession, evaluated all entries and selected one winning and two highly commended photos from each Stream. Congratulations to the following prize winners:

Winner – Professional Stream

• Geoff Potter, Sunshine Coast Newspapers from Noosa, QLD for his entry You’re a Lifesaver.

Winner – Volunteer/Amateur Stream

• Keith Pakenham, Country Fire Authority, Victoria from Keysborough, VIC for his entry Out At Last.

Highly Commended – Professional Stream

• Barry Smith, The Northern Daily Leader from Tamworth, NSW for his entry Fatal Accident Wallabadah 009.

• Will Russell, The Community News Group from Northbridge, WA for his entry All In A Day’s Work.

Highly Commended – Volunteer/Amateur Stream

• Ashley Hosking, South Australia Country Fire Service from Basket Range, SA for his entry School Visit.

• Bronwyn Hastings, Country Fire Authority, Dimboola Unit from Dimboola, VIC for her entry In Control.

The standard of the entries was such that a further eight entries were awarded commended certificates. Congratulations to the following commended entrants:

Commended – Professional Stream

• Glenn Coddington ACS, Blue Gum Productions from Springwood, NSW for his entry Hard Day.

Highly Commended – Volunteer/Amateur Stream

• Collette Harrold, Tasmanian Ambulance Service, Volunteer Ambulance Officer from Sorell, TAS for her entry A Shoulder to Cry On.
DEVELOPMENT CONTINUED

• Kevin Withnall, Wollongong City State Emergency Service from Wollongong, NSW for his entry Stretcher Handling Exercise.
• Brett Williams, St John Ambulance Australia, Volunteer First Aid Service from Belmont, WA for his entry Admiring Teamwork.
• Michael Drobbe, Bayswater Country Fire Authority from Bayswater, VIC for his entry Burn-off.
• Kevin Withnall, Wollongong City State Emergency Service from Wollongong, NSW for his entry Remote Bush Search/Rescue Exercise.
• Ashley Hosking, South Australia Country Fire Service from Basket Range, SA for his entry Early Morning Silhouette.
• Keith Pakenham, Country Fire Authority, Victoria from Keysborough, VIC for his entry Team Effort.

EMA would like to thank all those who entered this unique national photographic competition which aimed to specifically capture the essence of Emergency Management Volunteers In Action.

For further information contact Susan Stevens
Phone 02 6256 4611; email susan.stevens@ema.gov.au

COAG report on natural disasters in Australia—reforming mitigation, relief and recovery arrangements

This landmark report examines the ways in which Australia's national capacity to mitigate natural disasters and to manage their effects could be improved. It made a total of 12 Reform Commitments and 66 Recommendations for action. The report can be downloaded from http://www.dotars.gov.au/ndr/nat_disaster_report/naturaldis.pdf.

The Council of Australian Governments (COAG) gave in-principle approval to this Report in December 2003. Since then the Australian, State and Territory and local governments and agencies have worked to take the report beyond the ‘in-principle’ stage and develop a program and timetable to implement the report’s commitments and recommendations.

The Australian Emergency Management Committee (AEMC) has been reconstituted, as recommended by the Report, and a new national Ministerial Council, involving the Ministers responsible for emergency management in each jurisdiction, has been established. The Augmented Australasian Police Ministers’ Council (A/APMC) met for the first time in March 2005, and initiated work on a national implementation plan for the COAG recommendations. It tasked the AEMC to further investigate ways of providing tangible support (including training) for volunteers in emergency management, and to support remote Indigenous communities (COAG Commitment 10, and Recommendations 58 and 59–63). EMA provides the Secretariat for both the AEMC and the A/APMC.

EMA also provides a secretariat and reporting service to eight working groups set up to develop the Australian Government response to the commitments and recommendations of the COAG Report. They will report via the AEMC to the A/APMC.

For further information contact Li Peng Monroe
Phone 02 6256 4610; email lipeng.monroe@ema.gov.au

Bushfire awareness and preparedness day funding initiative

In preparation for taking this process forward, EMA has consulted with State and Territory nominated representatives seeking their involvement to develop plans for the effective use of the $6M funding. EMA has also consulted on this initiative with representatives from relevant Government Departments, the Bushfire CRC and the Australasian Fire Authorities Council (AFAC). Consultations have highlighted the importance of community education and awareness, which is a key issue raised in the McLeod and Esplin Reports, and in the Council of Australian Governments (COAG), National Inquiry on Bushfire Mitigation and Management, 2005.

Further, both the National Community Safety Working Group (reporting to AEMC) and the Australian Government Community Safety Working Group (feeding into the monitoring processes for the COAG Natural Disasters Report) have been alerted to these current developments and invited to contribute.

Outcomes from the consultations will be summarised in a submission to the Attorney-General seeking his approval to a recommended way forward in progressing the initiative.

For further information contact Li Peng Monroe
Phone 02 6256 4610; email lipeng.monroe@ema.gov.au

2005 Australian Safer Communities Awards

Planning has commenced for the 2005 Safer Communities Awards. In early February 2005, a meeting was organised to bring together State and Territory co-ordinators and EMA organisers to review the 2004 Awards and plan the 2005 Awards.

The annual Awards recognise best practice and innovation that build safer communities. They
**DEVELOPMENT CONTINUED**

Cover organisations and individuals working in risk assessment, research, education and training, information and knowledge management, prevention, preparedness, response and recovery.

Production of information booklets and registration forms for the 2005 Awards will be available from State and Territory co-ordinators from April 2005.

For further information contact Li Peng Monroe
Phone 02 6256 4610;
email lipeng.monroe@ema.gov.au

---

**PLANNING & OPERATIONS**

**Emergency Services Infrastructure Assurance Advisory Group (ES IAAG)**

The Emergency Services Infrastructure Assurance Advisory Group (ES IAAG), formed under the auspices of the Trusted Information Sharing Network (TISN), met on 8 April. The meeting focused on exchanging information about the protection of emergency services as an element of the national critical infrastructure and on continuity of service provision. The meeting was attended by emergency services representatives from States and Territories, emergency services peak bodies, the Australian Red Cross and relevant Australian Government representatives.

The work of the ES IAAG has concentrated on sharing of information, in particular, on key dependency/interdependency issues with other industry sector groups that include:

- engaging with service providers/managers on key elements of emergency services critical infrastructure and supply chains, for example, Telstra’s E000 call centre, and the National Oil Supply Emergency Committee; and

- engaging with other IAAGs, particularly the Food and Energy sectors to further understand relationships and interdependencies.

Key outcomes from this meeting was the agreement to continue scoping the establishment of an Emergency Management Expert Advisory Group and to continue engagement with other sector IAAGs on dependency/interdependency implications to deliver emergency services, in particular road and traffic transport management.

The Attorney-General, The Hon Philip Ruddock MP, launched a new secure website for the TISN on 13 April. The website provides a secure online forum allowing members of all IAAGs to share sensitive information.

For further information contact Rob Cameron
Phone 02 6256 4616;
email robert.cameron@ema.gov.au
INTERNATIONAL 2005

30 May–1 June
Location: Skiathos, Greece
Title: The Fifth International Conference on Earthquake Resistant Engineering Structures (ERES 2005)
Details: This meeting provides a unique forum for the discussion of basic and applied research in the various fields of earthquake engineering relevant to the design of structures. Discussion will focus on the state of the art in structures subjected to earthquakes, including the geophysical aspects, the behavior of historical buildings, seismic isolation, retrofitting, base isolation and energy absorption systems, and a wide range of applications and case studies.
Enquiries: Katie Banham, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, UK
tel: +44 (0) 238 029 3223
e-mail: kbanham@wessex.ac.uk
web: http://www.wessex.ac.uk/conferences/2005/eres05/.

31 May–3 June
Location: Boston, Massachusetts
Title: IAIA'05: Ethics and Quality in Impact Assessment
Details: IAIA'05 affords impact assessors an opportunity to examine and debate issues of ethical conduct and standards of quality in impact assessment and, as a practical matter, consider what the hallmarks of good assessment and ethical practice might be.
Enquiries: IAIA International Headquarters, 1330 23rd Street South, Suite C, Fargo, ND 58103
tel: (701) 297-7908
e-mail: info@iaia.org
web: http://www.iaia.org/.

31 May–4 June
Location: Baton Rouge, Louisiana
Title: Tenth Americas Conference on Wind Engineering (10ACWE)
Details: This conference seeks to facilitate the exchange of the latest scientific and technical information between academics, researchers, engineering and architecture practitioners, and students on the many aspects of wind engineering. In addition to traditional oral presentations of papers, the conference will include technical poster sessions, exhibitor booths, tours of the LSU Wind Tunnel Lab and other campus research facilities, and continuing professional development seminars and short courses designed for practitioners.
Enquiries: Marc Levitan, 10ACWE, c/o LSU Hurricane Center, Suite 3221 CEBA Building, Baton Rouge, LA 70803
tel: (225) 578-4813
e-mail: 10ACWE@hurricane.lsu.edu
web: http://www.10acwe.lsu.edu/.

6–8 June
Location: Lae, Papua New Guinea
Title: 12th Regional Disaster Managers Conference
Details: The aim of the conference is to promote safer and sustainable Communities in the Pacific Region. Objectives: Share information on recent developments and research in disaster risk management; Explore common issues, emerging trends and approaches in disaster risk management; Work together on achieving safer, sustainable communities.
Enquiries: South Pacific Applied Geoscience Commission, Private Mail Bag, GPO Suva, Fiji Islands
tel: +679 338 1377
e-mail: kata@sopac.org
<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Title</th>
<th>Details</th>
<th>Enquiries</th>
</tr>
</thead>
</table>
| 10–11 June | Las Vegas, Nevada | NFPA World Safety Conference and Exposition                          | The feature presentation at this conference will be National Institute of Standards and Technology's findings on the World Trade Center fire and collapse. In addition, more than 140 education sessions will be offered in areas such as building and life safety, business management, codes and standards, detection and suppression, disaster management/ business continuity, fire and emergency response, public education, and research. | NFPA Registration, c/o Exgenex Inc., 437 Turnpike Street, Canton, MA 02021  
tel: (888) 397-6209  
email: kbanham@wessex.ac.uk  
web: http://www.nfpa.org/ |
| 13–15 June | Rome, Italy     | SAFE 2005: First International Conference on Safety and Security Engineering | This conference will provide a forum for the presentation and discussion of the most recent developments in the theoretical and practical aspects of safety and security engineering, covering issues such as crisis management, security engineering, natural disasters and emergencies, terrorism, IT security, human-induced hazards, and mitigation. | Rachel Green, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, SO407AA, UK  
tel: +44 (0) 238 029 3223  
email: rgreen@wessex.ac.uk  
web: http://www.wessex.ac.uk/conferences/2005/safe05/ |
| 18–21 June | Stockholm, Sweden | The 9th European Conference on Traumatic Stress (ECOTS)             | This interdisciplinary conference welcomes anyone with an interest in psychotraumatology. Among the many main themes are effects of disasters and terrorism, helping the helpers, media and disaster, and community programs and intervention. | SFPH, Box 3445, SE-103 69 Stockholm, Sweden  
tel: +46 (0) 8 34 70 65  
email: info@sfph.se  
| 20–24 June | Saint Petersburg, Russia | 31st International Symposium on Remote Sensing of Environment (ISRSE): Global Monitoring for Sustainability and Security | The overall theme of this symposium is the use of Earth observation systems in monitoring, understanding, and managing our planet's environment with particular emphasis on global change, security, and sustainability. | Secretariat for ISRSE, 1955 East Sixth Street, Suite 208D, Tucson, AZ 85719  
email: isrse@email.arizona.edu  
web: http://www.niersc.spb.ru/isrse/ |
| 10–13 July | Toronto, Canada  | 15th World Conference on Disaster Management “The Changing Face of Disaster Management—Defining the New Normal” | The conference program includes speakers from many parts of the world and provides excellent opportunities for training and networking among those in Emergency Planning/Management, Emergency Response, Disaster Management Research, Emergency Communications, Business Continuity, Risk Management, Security, IT, HR, Environmental, Community Planning, as well as for the organizations which supply and service these professions. The 2005 Conference is expected to attract over 1,500 delegates from Canada, the US and from around the world. | Nasim Moolji at the Absolute Conference & Events  
tel: (416) 595-1414  
email: coord@wcdm.org  
web: http://www.wcdm.org/ |
| 21–25 August | Denver, Colorado | APCO International’s 71st Annual Conference and Exposition | This event is designed for decision makers in the area of public safety communications and will feature an educational forum, including the most current and cutting-edge presentations on homeland security and public safety communications technology. | APCO, 351 North Williamson Boulevard, Daytona Beach, FL 32114;  
tel: (386) 322-2500, (888) 272-6911  
email: apco@apco911.org  
**AUSTRALIA**

**12–14 July**

<table>
<thead>
<tr>
<th>Location</th>
<th>Canberra, Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>2005 Safeguarding Australia Conference: The 4th Homeland Security Summit and Exposition Conference</td>
</tr>
<tr>
<td>Details</td>
<td>This is the nation’s premier domestic security conference. In its fourth year, it has been expanded considerably. Over three days, the conference will examine the policy consequences for domestic security of the Howard Government’s fourth term. It will also identify issues for the implementation of the policy decisions and then consider pressing operational problems in the first responder community and Australian business. It will have a large exhibition of security, counter-terrorism and national security organisations.</td>
</tr>
</tbody>
</table>
| Enquiries| Keanne Stephenson  
tel: +61 0412 472 766  
email: keanne@safeguardingaustraliasummit.org.au  

Twist ye, twine* ye! even so, Mingle shades of joy and woe, Hope and fear, and peace and strife, In the thread of human life.
* divide
Sir Walter Scott 1771–1832

A prime responsibility of government is to provide, as far as possible, for the common defence and well-being of all the people for whom it is responsible, and a key issue in the 2004 Australian election was just these protective capabilities.

Since the dawning of the Nuclear Age of mass destruction six decades ago secure survival has largely been accomplished through the threat of mutual annihilation. Such containment during the Age of Anxiety was possible in a world where high levels of rationality co-existed on both sides of the Iron Curtain.

With the dawning of the Age of Terrorism, and its attendant irrationality, we have entered into a much more dangerous epoch where safeguarding individual people and society is much more difficult. ‘The new enemy is the embodiment of irrationality: nihilists with the cult of death, yearning for the apocalypse-armed, ready and appallingly able’ (Time October 18 2004).

The Survival Manual which Couch has so competently compiled and edited for civilian use from official U.S. Defense Department documents, is directed at maximizing the preparedness and protection of ordinary people ‘from the growing terrorist threat’.

In the late 1940s, in response to the arrival of atomic bombs, the U.S. Civil Defense Department produced a 10-minute film Duck and Cover (Archer Productions) in which schoolchildren and citizens generally were asked to behave like turtles and seek immediate shelter underneath any nearby protective cover: under a desk at school, next to the curb, within a designated building. With or without warning, this was what to do. Those living in post WWII Europe had, at best, a few minutes warning only.

As a first protection against nuclear attack, The Survival Manual proposes much the same response behaviours as Duck and Cover. Indeed this is quite similar to the counter-disaster behaviours for those subject to natural hazards such as severe tropical cyclones. Upon survival after a mushroom cloud, a number of other actions, such as decontamination, and making the best arrangements in the ensuring trauma, are also proposed.

The sections dealing with other weapons of mass destruction (WMDs), such as biological and chemical weapons, offer a good overview of what currently exists and their deleterious impacts and possible remediation. We now live at a time where simple and sophisticated lethal terrorist attacks may be inflicted without warning around the world.

Successful countermeasures for survivors of WMDs clearly turn upon early diagnoses of the weapons’ lethal agents and the availability of professional expertise and required specialist resources with which to initiate and manage victim survival treatments. It is one thing to know a little about these matters. It is quite another for ordinary individuals to be responsible for their own protection and survival. Indeed, in extreme circumstances, much is beyond the capacity of individual governments (Skertchly and Skertchly, AJEM Autumn 2001).

Thus while the reading and assimilation of the knowledge available in The Survival Manual is an important first stage in counter-terrorist strategies, there is an in surmountable gulf between this and providing effective protection to all people and society.

In the real world there never will be all the policies, practices and resources to guard against all dysfunctional contingencies—WMD terrorists and terrorism being amongst the worst possible.
Can you be an AUSTRALIAN SAFER COMMUNITIES AWARDS WINNER?

Nominate for the 2005 Awards in your State or Territory NOW.

The Australian Safer Communities Awards recognise people and organisations for best practice and innovation in emergency management.

For more information visit:

www.ema.gov.au

You can also download an entry form. Entries close Friday 19 August 2005.
At 12.42am on Monday February 13, 1978, a bomb exploded in the back of a garbage truck on George Street beside the Sydney Hilton Hotel. The bomb killed two garbage men and a policeman who was on guard duty outside the hotel where the leaders of 12 Asian and Pacific nations were staying for the Commonwealth Heads of Government Regional Meeting (CHOGRM).

The bomb resulted in blast damage nine meters up the wall of the Hilton Hotel and shattered glass along George Street and surrounding buildings. The two garbage men, William Favell and Alex Carter, died while loading rubbish into the back of their garbage truck much the same as any morning. The police officer, Paul Burmawrow, was also killed in the bomb blast.

It was purported that the target of the bombing incident was the then Prime Minister of India, Moraji Desai.

The Sydney Hilton bombing was the first terrorist type incident that Australia had ever experienced and so resulted in an express need for increased security forces and investigations to be undertaken.

The growth of political terrorist activities, such as the Sydney Hilton bombing, has lead to increased emphasis on counter terrorism measures in Australia and throughout the world.

Cover photo: Sydney – December 2002. Members of the anti terrorist unit are hosed down in the decontamination chamber during the New South Wales tactical operations unit mock counter-terror operation at a training facility.
EMA SEEKS APPLICATIONS FOR FUNDING

Applications close on 29 July 2005
Emergency Management Australia (EMA) is seeking applications for funding in financial year 2005/06 under the new Australian Government initiative “Working Together to Manage Emergencies”. Local governments and volunteer agencies are strongly encouraged to apply.

The funding is available to support local governments, communities and volunteer agencies develop strategies to improve community safety, enhance training for volunteers involved in emergency management and promote community self-reliance.

EMA, the Australian Government’s lead agency with responsibility for reducing risks to communities and managing the consequences of disasters, is administering this four year initiative. Funding is available through a $13 million National Emergency Volunteer Support Fund.

Local Grants Scheme
The Local Grants Scheme will enhance the capability of communities to prepare for, respond to and recover from emergencies and disasters arising from any hazard. The Scheme provides funding to assist communities to develop and implement community emergency risk management initiatives, enhance protective measures for critical infrastructure, and provide emergency management and security awareness training for local government staff.

National Emergency Volunteer Support Fund
The National Emergency Volunteer Support Fund provides assistance for volunteer organisations to undertake projects to boost recruitment, retention and training of volunteers at the frontline of emergency management. This Fund recognises the significant role Australia’s national emergency services volunteer pool plays in assisting the community to respond to and recover from emergencies.

Consideration of Applications
Applications for both Programs will be assessed by the relevant State and Territory Selection Committee, involving extensive consultation through existing emergency management frameworks.
Successful applications will be approved by the Australian Government Attorney-General, the Hon. Philip Ruddock MP, and announcement of the outcomes will be made by 30 November 2005.

HOW TO APPLY
Application forms are available from the EMA website at www.ema.gov.au/communitydevelopment or by contacting EMA’s Community Development Branch on
Email: cdd@ema.gov.au or
Phone: 02 6256 4733, 02 6256 4734, 02 6256 4600
Fax: 02 6256 4653

The Australian Journal of Emergency Management
Vol 20 No 2 May 2005

Counter-terrorism and emergency management

Are we ready for nuclear terrorism? Why governments and business should partner on critical infrastructure Why Royal Darwin was prepared for Bali

E M A ' safer sustainable communities'