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Australian Institute for Disaster Resilience

Emergency Management Australia

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EMERGENCY MANAGEMENT IN AUSTRALIA

CONCEPTS AND PRINCIPLES

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EMA

'safer sustainable communities'

AUSTRALIAN EMERGENCY

MANUAL SERIES

EMERGENCY MANAGEMENT IN AUSTRALIA

CONCEPTS AND PRINCIPLES

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MANUAL NUMBER 1

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The Australian Emergency Manual Series

The first publication in the original AEM Series of mainly skills reference manuals was produced in 1989. In August 1996, on advice from the National Emergency Management Principles and Practice Advisory Group, EMA agreed to expand the AEM Series to include a more comprehensive range of emergency management principles and practice reference publications.

The Australian Emergency Series has been developed to assist in the management and delivery of support services in a disaster context. It comprises principles, strategies and actions, compiled by practitioners with management and service delivery experience in a range of disaster events.

The series has been developed by a national consultative committee representing a range of State and Territory agencies involved in the delivery of support services and sponsored by Emergency Management Australia (EMA).

The manuals are available in full text on the EMA website at http://www.ema.gov.au under Publications. Limited Print copies are distributed to state and territory emergency management organisations, community organisations and relevant government agencies. These manuals are also available free of charge on CD. Please send requests to ema@ema.gov.au.

The emergency services skills series (skills and training management topics) are issued as training guides to state agencies through each state and territory emergency service.

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FOREWORD

In 1989, the Natural Disasters Organisation (NDO) – the predecessor to Emergency Management Australia (EMA) – published 'C*ommonwealth counter disaster concepts and principles*' as the proposed lead volume in a revised Australian counter disaster handbook.

The publication promoted concepts and principles which were felt appropriate to Australian needs at the time. There were four key concepts: an all-hazards approach, a comprehensive approach, an all-agencies (or integrated) approach, and a 'prepared community' approach. The principles emphasised the importance of hazard analysis, proper organisation, pre-determined command, control and coordination arrangements, information management, and effective plans which could be rapidly activated without the necessity for formal declarations of a state of emergency.

Over the ensuing years, these concepts and principles have increasingly found their way into emergency and disaster management legislation, arrangements and plans in Australia, and the basic concepts and principles remained unchanged when a second edition of the publication was issued in 1993.

With significant shifts in structure, focus and methodologies in the emergency and disaster management environment in recent years, a need to revisit the original concepts and principles document has been identified. New hazards, and the recurrence of some older ones in changed or more destructive forms – human and animal diseases, bushfires, acts of terrorism, transportation accidents, flash flooding, environmental pollution, infrastructure vulnerabilities and the like – have led to many studies and reviews, the results of which need to be taken into account.

Since the mid-1970s in Australia, all States and Territories have undertaken major reviews and restructuring of their emergency and disaster management arrangements, and in 2003 the Council of Australian Governments (COAG) initiated a national review of preparedness to deal with disasters and major emergencies. The results of all these studies and reviews have added to our understandings.

This revised publication has input from all States and Territories and reflects a national approach to emergency management concepts and their application, and supports the Prime Minister's commitment that protecting Australia is the Australia Government's highest priority, and emergency management is a critical component of this approach.

Designed to be the introductory volume in the Australian emergency manuals series, the primary audience includes members of emergency management organisations and their supporting agencies, as well as those people who are planning a career in emergency management.

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David Templeman
Director General
Emergency Management Australia
6 October 2004

PREFACE

Every nation-state accepts the need for measures to protect and preserve the lives and property of its citizens, whether from external threats or internal hazards.

All such measures, however, must be seen as components of much wider policies—those designed to ensure the development and maintenance of safer, sustainable communities, communities in which all members can live, work and pursue their appropriate needs and interests in a safe and sustainable physical and social environment.

This introductory volume in the Australian Emergency Manual Series addresses the current Australian concepts in dealing with that element of community safety concerned with emergency management, which is:

a range of measures to manage risks to the community and the environment.

KEY TERMS

The following key terms are used throughout this manual.

Community
A group of people with a commonality of association and generally defined by location, shared experience or function.

Elements at risk
The population, buildings and civil engineering works, economic activities, public services and infrastructure etc. exposed to sources of risk

Emergency management
A range of measures to manage risks to communities and the environment.

Emergency risk management
A systematic process that produces a range of measures that contribute to the well-being of communities and the environment.

Event
An incident or situation, which occurs in a particular place during a particular interval of time.

Hazard
A source of potential harm, or a situation with a potential to cause loss.

Risk
The chance of something happening that will have an impact upon objectives, measured in terms of consequences and likelihood. In *emergency management*, it is more particularly described as 'a concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, the community and the environment'.

Terms for *events*, such as *emergency* and *disaster*, are variously defined in legislation and policy documentation in the separate state and territories of the Commonwealth, but in this volume are taken to mean:

Emergency
An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response.

Disaster
A condition or situation of significant destruction, disruption and/or distress to a community.

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1. EMERGENCIES AND DISASTERS—A BACKGROUND

An 'event' or a 'situation'?

A number of definitions of 'emergency' and 'disaster' have been proposed over time, many of them focussing on some measure of the cost of the event in terms of loss of life or damage. An early definition of 'disaster' was 'an event which takes more than 10,000 lives'. On that definition, Australia's only recorded disaster was the influenza epidemic of 1918–19, which certainly caused at least that number of deaths.

More recently, however, the focus of concern with emergencies and disasters has moved towards consideration of the ***situation*** created by such phenomena rather than simply of the origin, nature, size, speed of onset and other physical attributes of the hazard, which results in the ***event*** itself. To some extent, this change of focus has been brought about by our recognition of our limited capability for controlling such attributes, in the case of natural hazards in particular. But it has also stemmed from our realisation that the consequences of many different types of events—the *situation* that the impact of such events, whether natural or man-made, may create in terms of social, economic, environmental, developmental and political consequences for the communities they impact—can be remarkably similar. Importantly, we now recognise that emergencies and disasters occur in a social context and have social consequences.

It is important that we continue to expand our understanding of the physical attributes of the hazards to which our communities may be subject, in order to find ways to prevent emergencies or disasters occurring and to reduce their impacts. We also need to learn more about how we can manage the situations created by the impacts of those hazards that cannot be prevented or otherwise reduced. This requires us to develop a more detailed understanding of the factors that may lead to such situations occurring, and how such factors may be managed.

A key to this understanding is an ability to differentiate between hazards and risk.

Hazards and risk

Australian communities live with a variety of ***hazards***—sources of potential harm or situations with a potential to cause loss.

Many of these hazards are often termed 'natural hazards' and include floods, cyclones, earthquakes, heatwaves, windstorms and bushfires. They have their origins in the environment in which we live and are often seasonal and regional.

Others are frequently identified as 'technological hazards', including building fires, explosions, transportation incidents, toxic materials releases and the like. They often result from the failure of man-made systems or are the outcomes of human action. They are frequently unpredictable and can occur almost anytime and anywhere.

There are other sources of hazard with which we may be less familiar. These include hazards of chemical, biological and radiological origin, including human and animal disease, and hazards which may be largely social in origin, such as civil unrest and terrorism.

Because of Australia's size, location and great diversity of geophysical and climatic conditions, we live with a wide range of natural hazards. Similarly, with our level of industrial development and the complexity of many of the systems we need to maintain our standards of living, technological and other hazards abound.

Much descriptive material on the origin and nature of hazards facing the Australian community and on particular historical emergencies and disasters in Australia is available (including various EMA publications), and a selection of these is included in the 'For More Information …' section at the end of this manual.

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The first part of the definition of ***risk*** (see 'Key Terms')—'the chance of something happening that will have an impact upon objectives, measured in terms of consequences and likelihood'—is the generic definition from the Australian/New Zealand Risk Management Standard 4360:2004 and is used in all sections of the risk management industry.

In the field of emergency management, however, the risks we deal with are likely to have adverse consequences for our communities and their community safety and sustainable development objectives. In this context, hazards by themselves are only one part of the risk equation. The second part of our definition—'a concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, the community and the environment'—recognises this reality.

Hazards are the primary *sources of risk* in the emergency management context, but they need to interact with *elements at risk* in the community and its environment in order to lead to the situations that we identify as emergencies or disasters. Those elements include the built, physical and social elements which surround or interact with the community.

In our context, therefore, 'environment' includes the whole range of 'lifelines' and essential services, infrastructures, key resources, and social and economic frameworks on which modern communities depend for day-to-day living and for future development.

The extent to which any of these community and environment elements at risk may interact with a hazard (a source of risk) to create the possibility of an emergency or disaster can be measured in terms of that element's *vulnerability* to the particular hazard—theoretically, somewhere along a continuum from complete *susceptibility* to such an interaction (where any interaction can lead to the loss of the element or to its irreparable damage) to complete *resilience* to an interaction (where no interaction, however severe, will lead to loss or damage to the element).

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So, from the emergency management perspective, the risk to a *safer, sustainable community* from emergencies and disasters lies in the potential and actual interactions between the *hazards* to which that community is exposed and the *vulnerability* of that community's *elements at risk* to such exposure.

The Australian emergency management concepts and applications described in the following chapters are designed to assist in developing a safer, sustainable community:

- by limiting the potential for such interactions—eliminating or mitigating the hazards to which a community is exposed, reducing the exposure of the community and its environment to those hazards, and increasing the resilience of the community's elements at risk; and
- by managing emergencies and disasters, which result from those interactions which do occur.

2. AUSTRALIAN EMERGENCY MANAGEMENT CONCEPTS

The context of emergency management

Emergency management policies and programs contribute to the goal of *a safer, sustainable community*, helping ensure that all citizens can live, work and pursue their appropriate needs and interests in a safe and sustainable physical and social environment.

Basic approaches to emergency management

Australia has adopted a ***comprehensive*** and ***integrated approach*** to the development of its arrangements and programs for the effective management of emergencies and disasters. This approach is:

- ***comprehensive***, in encompassing *all hazards* and in recognising that dealing with the *risks* to community safety, which such hazards create, requires a range of *prevention/mitigation*, *preparedness*, *response* and *recovery* (PPRR) *programs* and other risk management treatments; and
- ***integrated***, in ensuring that the efforts of governments, all relevant organisations and agencies, and the community, as a *prepared community*, are coordinated in such programs.

Ultimately, the goal of all such arrangements and programs is to contribute to the development and maintenance of a safer, sustainable community.

The comprehensive approach

Emergency management arrangements and programs need to be able to deal with the wide variety and scale of hazards that may affect Australian communities, whether these originate from natural, technological, biological or social agents or result from an interaction between agents in any of these fields.

These ***all hazards*** arrangements and programs must also provide for the performance of humanitarian tasks, which may be required to protect our civil population from the dangers that might arise from hostilities, to provide the conditions necessary for individual and community survival in such circumstances, and to help the community recover from the immediate effects of hostile action. These humanitarian or civil defence tasks are prescribed in the 1977 Protocols Additional to the Geneva Conventions of 1949, to which Australia is a signatory.

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However, as discussed in Chapter 1, the *risk* of an emergency or disaster occurring is created when a hazard, a *source of risk*, has the potential to affect a community that is vulnerable to such an impact, so that any type of hazard is essentially a *source of risk* to such a community. The *elements at risk* from possible hazard impact in a community will include the lives and property of its citizens, infrastructure and essential services, the local economy and the environment.

Some examples will help to distinguish between hazards and risks.

- Cyclones form seasonally in Australia's northern waters. These hazards clearly create a risk to communities that lie within their paths or that may be affected by some of the conditions created by a cyclone, such as storm surge. Frequently, cyclones will move away from the coast and eventually dissipate. They may also decrease in intensity and cross the coast with little effect on coastal communities well prepared to deal with such events, but cause heavy rain and floods in inland areas. In some instances, such conditions may result in benefits for agriculture and ecology.

On occasion, however, a cyclone will affect a community, which may be particularly vulnerable to the size or nature of the event, as happened in the case of a fishing fleet off northern Queensland in 1890 and in relation to the city of Darwin in 1974.

- Occasionally, an extreme or severe bushfire may occur in a remote area of central Australia. The risk that such a fire may lead to an emergency or disaster depends on the possibility that a community may lie in the path of such a fire, or that major operations such as mineral or pastoral developments may be directly affected, and these possibilities are limited.
- Communities in many parts of Australia are subject to the hazards of area-flooding or flash-flooding. Engineering solutions such as dams, levees and flood-channelling can rarely be expected to remove such a hazard altogether. But the risk that flooding may lead to an emergency or disaster in a particular community may be significantly reduced by combining such structural measures with provisions such as local laws establishing minimum floor levels for new buildings and restricting development in flood-prone areas, effective response and recovery arrangements as part of community emergency risk management planning, and 'flood-proofing' of essential services. Even with such measures, however, some areas may still face higher levels of risk than others.

So, reducing or eliminating the risk to any community of emergencies and disasters requires programs aimed at reducing or eliminating both the hazards to which that community may be subject and the vulnerability of that community to those hazards. Vulnerability is measured by the extent to which a community or an environment is susceptible or resilient to hazards.

Australia's *comprehensive* approach to emergency management recognises four types of activities that contribute to the reduction or elimination of hazards and to reducing the susceptibility or increasing the resilience to hazards of a community or environment:

- ***prevention/mitigation activities***, which seek to eliminate or reduce the impact of hazards themselves and/or to reduce the susceptibility and increase the resilience of the community subject to the impact of those hazards;
- ***preparedness activities***, which establish arrangements and plans and provide education and information to prepare the community to deal effectively with such emergencies and disasters as may eventuate;
- ***response activities***, which activate preparedness arrangements and plans to put in place effective measures to deal with emergencies and disasters if and when they do occur; and
- ***recovery activities***, which assist a community affected by an emergency or disaster in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well-being.

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Typical program activities may include:

Prevention/mitigation

Building codes	Public education	Insurance
Building-use regulations	Public information	incentives/disincentives
Legislation	Tax incentives/disincentives	Zoning/land-use management

Preparedness

Emergency response plans	Mutual aid agreements	Training programs
Warning systems	Public education	Test exercises
Evacuation plans	Public information	Refuge shelters
Emergency communications	Resource inventories	

Response

Plan implementation	Inform higher authorities	Search and rescue
Emergency declarations	Activate coordination centres	Provide medical support
Warning messages	Evacuation	Institute public health measures
Public information	Mobilise resources	Provide immediate relief
Registration and tracing	Damage assessment	

Recovery

Restore essential services	Distribute recovery stores	Restore public assets
Counselling programs	Public information	Economic impact studies
Temporary housing	Long-term medical support	Review development plans
Financial support/assistance	Manage public appeals	Initiate reconstruction tasks

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It is important to note that these activities are not 'linear' and independent of each other. While preparedness and response activities and measures are closely related and sequential, recovery follows the impact of an event, the comprehensive approach to emergency management requires that PPRR programs be effectively integrated.

This can be most clearly demonstrated in emergency management planning at local government level, where consideration is being given to the hazards specific to a geographic area and to the particular vulnerabilities of communities within that area to those hazards. PPRR programs at local government level, therefore, need to be subject to effective oversight arrangements to ensure the integrated 'best use' of available systems and resources. The adoption of an appropriate community emergency management/risk management process will help to ensure this outcome, and is discussed further in Chapter 3.

The integrated approach

For Australia's comprehensive approach to emergency management to be workable, there must be effective arrangements for the coordination of the activities of governments and of the large number of organisations and agencies that need to be involved in PPRR activities. These arrangements need to be set within a legislative and public policy framework.

The role of governments in providing an effective emergency management framework, under Australian constitutional arrangements, is considered further in the next chapter. The second manual in this series, *Manual 2—Australian Emergency Management Arrangements*, describes the national arrangements for emergency management, and details the legislative frameworks and management arrangements in each state and territory.

In giving effect to integrated emergency management arrangements at national, state/territory and local government levels and in promoting the development of a true community safety partnership, many government and statutory agencies need to play an active role. Some agencies will have a primary role in only one of the PPRR programs, but most can be expected to have a secondary or support role in others and all will need to have an understanding of the emergency management policy frameworks and arrangements that apply in their areas of responsibility.

The major voluntary organisations, which have always played a significant role in Australia in both peace and war, give practical expression to the 'self-help principle'—people joining together to provide support and services to their own and other communities. A number of long-standing voluntary organisations are directly involved in preparedness, response and recovery activities, and community needs after the impact of emergencies and disasters will often stimulate the establishment of emergent community consultative and self-help groups.

Ultimately, though, a prepared community is a safer community.

Individuals can do much to help themselves and others in their community by:

- being aware of local hazards and the risks that may result from them;
- taking appropriate individual precautions against such risks;
- being actively involved in community-based voluntary organisations; and
- helping to ensure that local government has effective arrangements in place.

Local voluntary organisations, when effectively integrated into local emergency management arrangements, can play a vital part in emergency management at community level, not only in giving access to community resources and expertise but also in acting as a link in the essential information chain between local government, emergency management agencies and the community.

When major emergencies or disasters strike, individual and community self-help can often provide the most readily-available and effective relief: assistance from external sources may be limited or delayed by other demands on resources. Local government and community organisations, with their understanding of local needs and capabilities, provide the basis for organising effective and immediately-available community self-help.

The basic requirements for a ***prepared community***, therefore, are:

- alert, informed and active citizens;
- effective community organisations with identified and positive roles in local emergency management arrangements; and
- local governments, which acknowledge their lead roles in community safety issues and which have well-established, widely-understood and practised arrangements for discharging their community safety responsibilities.

Australia's integrated approach to emergency management is designed to ensure that the efforts of all relevant organisations, agencies and the community itself can be coordinated effectively in the development of a safer community.

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3. APPLYING THE CONCEPTS

The role of government

All levels of government in Australia have roles, responsibilities and capabilities of relevance to the development and maintenance of safer, sustainable communities.

Australia operates under a federal system, which divides power and responsibility between two levels of government, the Commonwealth and the states and territories. The third level of government in Australia, local government, draws its powers and responsibilities from its respective state governments.

Commonwealth and state and territory governments have established organisational arrangements and lines of reporting to undertake risk prevention/mitigation activities and to effectively prepare for, respond to and recover from emergencies and disasters.

Local governments also have specific emergency management responsibilities, often directly legislated by state and territory governments, in contributing to a range of measures to manage risks to their communities and the environment and in coordinating community resources and capabilities in responding to emergencies and disasters.

An effective national framework for emergency management, therefore, requires a high level of collaboration and coordination within and across all levels of government and with non-government stakeholders. Collaborative and coordinated ***whole of government*** management of risks to the Australian community is affected by arrangements to ensure that:

- key policy decisions in risk prevention and mitigation and priorities in preparedness for, response to and recovery from disasters and major emergencies are established at the highest levels of government;
- such decisions are informed by proper and timely professional and technical advice;
- effective coordination between and within agencies is achieved; and
- the decisions and consequential actions are effectively communicated to the public.

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Risk management methodology

In 1995, a new joint Australian and New Zealand Standard for risk management was agreed. The standard is generic and designed for widespread application. In 1996, the then peak body in Australian emergency management, the National Emergency Management Committee, endorsed the standard for application to emergency management in Australia and required that the standard's principles and processes be adopted and that appropriate guidelines for the standard's application in emergency management be developed.

Basically, adoption of the standard's principles and processes in the field of emergency management endorses the comprehensive and integrated approach outlined in the previous chapter.

Just as importantly, however, this methodology has supported the move away from simply treating hazards to dealing effectively with risks to the Australian community. This has required that more attention be given to the vulnerability of communities to hazards, recognising that effective emergency management strategies need to be built upon actions to reduce susceptibility and increase resilience to hazards, as well as upon actions to eliminate or modify hazards.

The risk management process, when applied in the emergency management context, incorporates the following steps:

- risks to community safety are identified, analysed and evaluated in terms of hazard potential and community vulnerability;
- evaluated risks are referred to relevant policy-makers for assessment and ranking:
- if it is decided that risks shall *not* be treated then they are monitored and regularly reviewed in conjunction with their existing control measures; and
- where it is decided that risks *will* be treated, then treatment strategies are developed and implemented to reduce the risks by modifying the characteristics of hazards, the community and the environment. Risk reduction may affect vulnerability, likelihood or consequence.
- risks, which remain after practicable prevention/mitigation strategies have been developed ('residual risks'), are then assessed and appropriate preparedness, response and recovery plans and arrangements are prepared to deal with them.

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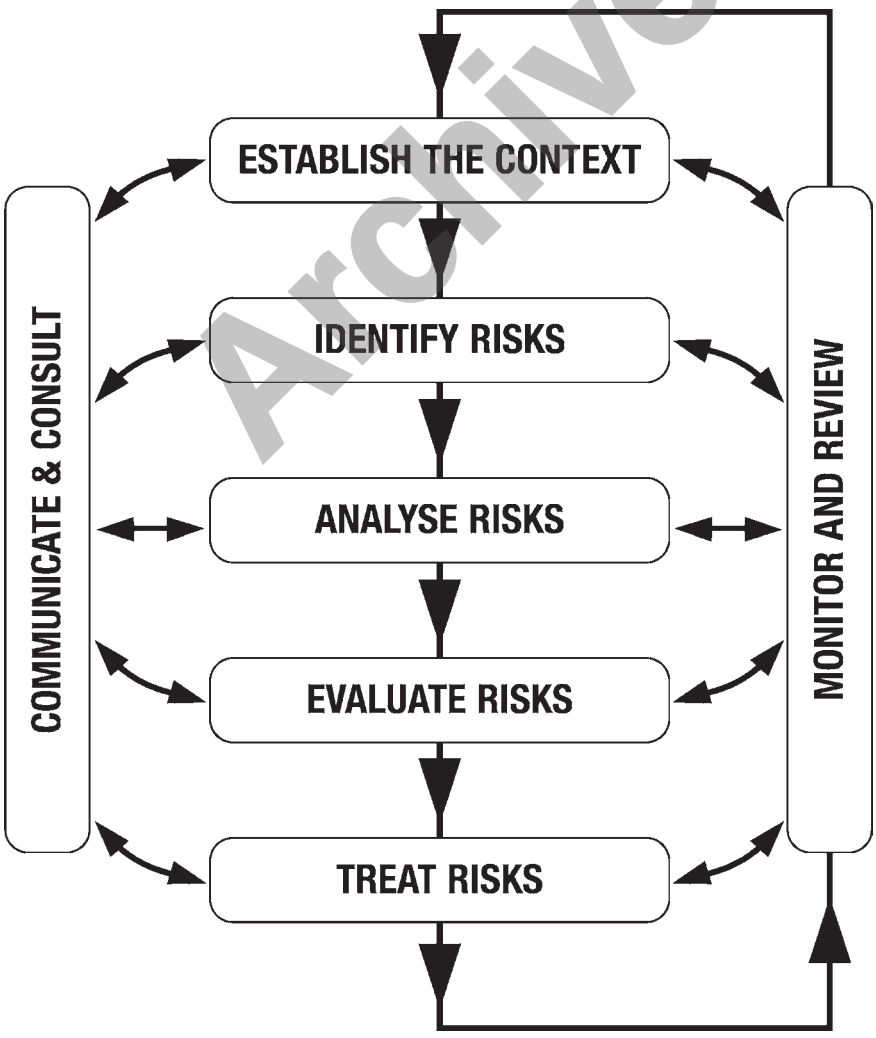
ERM PROCESS FLOWCHART



EMERGENCY MANAGEMENT PRACTICE

Emergency management committees and working groups may differ in name and structure across the country but there is a common foundation of concepts and principles upon which they operate. Implementing the concepts and principles to ensure effective emergency management is a very dynamic process. There is such a diverse range of hazards, communities and environments that emergency management strategies and activities need to be flexible and adaptable within the overall comprehensive and integrated approaches. We need to actively promote the concept that emergency risk management is a core part of good management and governance. This approach needs to be integrated into all our emergency management policy and decision making. A proactive approach to dealing with emergencies and disasters has many benefits and although we always need an effective reactive capability in place, we can reduce risks through mitigation strategies and be better prepared to respond and recover.

Emergency service agencies and emergency management professionals recognise that working together with communities, governments and all key stakeholders is essential to achieve a cooperative and supportive approach to implementing emergency management programs. Emergency Management professionals are those individuals who actively implement the comprehensive and integrated approach to emergency management in their daily duties and provide the leadership, education and operational support in a multi-agency environment. These practitioners are found in all states and territories and work with emergency services and government organisations to develop and implement emergency management. Through this important work emergency management will be recognized as making an important contribution to the social, economic and environmental development of safer communities.

EMA, at Australian government level, assists the states and territories and advocates emergency management education and development. EMA also plays a key role in coordinating interstate and international assistance in the times of major emergencies and disasters. There are a range of supporting EMA publications which cover many aspects of emergency and disaster management and this material is enhanced through education programs at the Emergency Management Australia Institute, Mt Macedon in Victoria. Further information on courses can be obtained by contacting local state and territory emergency management agencies and accessing the EMA website.

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FOR MORE INFORMATION...

The following sources can provide further information on the background to emergencies and disasters in Australia and on the concepts and principles which underpin Australian emergency management principles and practices.

Books likely to be found in most Australian public libraries

Australian Academy of Technological Sciences, 1985, *Natural Disasters in Australia: Proceedings of the Ninth Invitation Seminar*, The Academy, Melbourne.

Bell, F C, 1989, *Natural Hazards in Australia*, Longman Cheshire, Melbourne.

Country Fire Authority and Geography Teachers' Association, Victoria, 1995, *Bushfires: Living with Australia's Natural Heritage*, Country Fire Authority, Burwood East, Vic.

Emergency Management Australia, 2003, *Hazards, Disasters and Your Community: A booklet for students and the community*, 6th edn., Commonwealth of Australia (EMA), Canberra.

International Committee of the Red Cross, 1977, *Protocols Additional to the Geneva Conventions of 12 August 1949*, ICRC, Geneva.

Kennedy, B and B, 1989, *Disasters*, Longman Cheshire, Melbourne.

Lidstone, J and Wilson, P (Australian Geography Teachers' Association), 1993, *Learning to Live Safely in the Australian Environment*, The QUT Centre for Applied Environmental and Social Education Research, Brisbane.

Mackay, I, 1981, *Great Australian Disasters*, Rigby, Adelaide.

Pearce, K, 1994, *Australian Railway Disasters*, IPL Books, Smithfield, NSW.

Pownall, E, 1982, *Disaster Strikes*, Pan Books, Sydney.

Some interesting and useful Australian web sites

On hazards generally

Australian Bureau of Meteorology, http://www.bom.gov.au

Geoscience Australia, Australian Government, http://www.agso.gov.au

Risk Frontiers, Macquarie University, http://www.es.mq.edu.au/nhrc/index1.html

Centre for Resource and Environmental Studies, Australian National University, http://cres.anu.edu.au

FireNet, Australian National University, http://online.anu.edu.au/Forestry/fire/firenet.html

National agencies

Australian Fire Authorities Counc, http://www.ausfire.com/

Australian Local Government Association, http://www.alga.com.au

Australian Red Cross Society, http://www.redcross.org.au/default.asp

Emergency Management Australia, http://www.ema.gov.au

Other agencies

State/territory Emergency Services:

ACT Emergency Services Bureau, http://www.ses.act.gov.au/

NSW State Emergency Service, http://www.ses.nsw.gov.au

Qld State Emergency Service, http://www.emergency.qld.gov.au

NT Emergency Service, http://www.nt.gov.au/pfes/es/index.html

SA Emergency Service, http://www.sessa.asn.au/

TAS State Emergency Service, http://www.ses.tas.gov.au/

VIC State Emergency Service, http://www.ses.vic.gov.au/

WA State Emergency Service, http://www.fesa.wa.gov.au

Wireless Institute Civil Emergency Network NSW (WICEN), http://www.nsw.wicen.org.au/

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Emergency Management Australia

CONCEPTS AND PRINCIPLES MANUAL 1

www.ema.gov.au