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Emergency Management Information Development Plan

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PREFACE

The national Emergency Management Information Development Plan (EMIDP) and the accompanying Data Needs Matrix which underpins the EMIDP have been developed by the Emergency Management Information Development Plan Working Group (EMIDPWG). The Working Group membership includes representatives from emergency services agencies in each state and territory as well as Australian Government agencies with responsibilities for emergency management. The Australian Bureau of Statistics (ABS) participates in the workgroup and has produced the EMIDP in response to priority statistical data needs expressed by state and territory government agencies through the State Statistical Priorities Process and as part of the National Statistical Service.

In developing the EMIDP extensive consultation has taken place with a large range of Australian, state and territory agencies, as well as emergency management peak bodies and other non-government agencies. Their contribution to, and support for, this work is gratefully acknowledged. This plan addresses the information requirements arising from the broad concept of emergency management discussed further in Chapter 2, however specific emergency services agencies provided key input in determining priorities.

While key bodies continue to work on data issues within the emergency management sector, current work is often fragmented, lacks coordination and transparency, and has the potential for duplication. The EMIDP has been designed as a workplan for the sector and is an attempt to provide an integrated and coordinated approach to this work. It provides a useful summary of work in progress and outlines the work program for the next three years. Over that time, the ABS will provide statistical advice and expertise in support of the plan and the EMIDPWG will monitor overall progress on the work program, reviewing and updating the plan before 2010.

The plan has been sponsored by the National Information Management Advisory Group (NIMAG) and endorsed by the Australian Emergency Management Committee (AEMC). There is commitment from both national agencies and state and territory emergency management jurisdictions to progress the development activities described in the EMIDP. The EMIDP therefore provides a national information framework for all emergency management initiatives throughout Australia.

Peter Harper
Acting Australian Statistician

Robert Cornall AO
Secretary, Attorney-General's Department and
Chair, Australian Emergency Management Committee

OVERVIEW

REQUEST FOR COMMENTS

This discussion paper provides a framework to improve the information needed by the emergency management sector in Australia. The increased focus on emergency management activity has generated an increased level of planning and investment to improve the availability and quality of information needed for cost-effective emergency management. This has led to multiple, fragmented and parallel projects with overlapping priorities and an increased potential for duplication. This paper is therefore a framework to integrate and coordinate the development of the suite of information required to support policy, planning and accountability within the sector.

This document sets information requirements within the context of emerging national emergency management policy. It also looks at six key priority information gaps within emergency management with associated proposals for the development of sources to fill these gaps.

Supporting the EMIDP is a detailed *Data Needs Matrix* (cat. no. 1385.0.55.001) which has been published in conjunction with this document. The Matrix is a framework designed with the flexibility to reflect the wider sphere of the emergency management community's information needs. It is a living document and can adapt to suit future changes in the needs of the emergency management community. It also forms a basis for further consideration and organisation of priorities for research work/activities within emergency management.

The Matrix currently reflects mainly the input of members of the Emergency Management Information Development Plan Working Group, predominantly emergency service organisations. Readers from the wider emergency management community are therefore invited to comment on perceived gaps within the Matrix, whether in the existing data sources, the data needs expressed in the Matrix or the priorities assigned to the data need. Comments are also sought on the draft taxonomy of emergency events used within the Matrix.

Comments on the Matrix, or the EMIDP itself, will be referred to the Working Group to enable the Matrix to be updated on a regular basis. Comments should be directed to:

The Secretariat

Emergency Management Information Development Plan Working Group

Email: emergency.management.information@abs.gov.au

CHAPTER 1 INTRODUCTION

INTRODUCTION

For some years the emergency management sector has seen the need to establish consistent and comparable national emergency management information to provide greater cohesion across emergency management data sources. National emergency management data collections are currently produced by a number of organisations including Emergency Management Australia (EMA), the Australasian Fire Authorities Council (AFAC), the Council of Ambulance Authorities (CAA), the Steering Committee for the Review of Commonwealth/State Service Provision (SCRCSSP) and Macquarie University's Natural Hazards Research Centre (NHRC). A large number of state and territory emergency management data collections also currently exist.

The release of the 2002 Council of Australian Government (COAG) Report *Natural Disasters in Australia: Reforming mitigation, relief and recovery arrangements,* coupled with the increasing emphasis on the development of emergency management plans and policy in relation to counter-terrorism, has added to this impetus for greater cohesion across and within jurisdictions. This publication has been produced by drawing together the knowledge and experience of the emergency management community.

1.1 PURPOSE

Improvement in the availability of relevant, high quality emergency management information will assist emergency management research and decision making, and facilitate informed discussion within government and the community. It will also assist in coordinating the activities of emergency management agencies by promoting a more unified national body of information within an appropriate conceptual framework. It will also aid local decision making as it is emergency service agencies that make decisions on resources and treatment mix which ultimately have an impact on emergency management. The EMIDP provides a framework for improvements to current data collections. It identifies information needs as well as gaps, overlaps and deficiencies in existing information, frameworks, classifications and standards.

The EMIDP is designed to reflect the suite of information required to support policy, planning and accountability within the sector. Recognising the diversity of arrangements for the collection and dissemination of emergency management information, the EMIDP:

- identifies key issues and data items for consideration;
- presents agreed priorities and plans for improving relevance, coverage, comparability and quality of information; and
- identifies responsibilities for progressing individual strands of work, and for monitoring the overall process.

The EMIDP is an ongoing initiative with an initial time frame of three years, with periodic review and renewal. Over that time frame, it will provide opportunities, mainly through the Matrix, for additional input on the changing information development needs of the broader emergency management community.

1.2 KEY DRIVERS

The main driver of the plan is for the emergency management sector to have access to consistent and comparable information for evidence-based decision making, allowing them to do their job more effectively.

In addition, there have been a number of significant reports and findings recommending a more unified and comprehensive approach to emergency management and reducing risks. These include:

- The COAG Report *Natural Disasters in Australia,* in particular, Reform Commitments 1 and 2 from this report which respectively state: 'develop and implement a five-year national programme of systematic and rigorous disaster risk assessments' and 'establish a nationally consistent system of data collection, research and analysis to ensure a sound knowledge base on natural disasters and disaster mitigation' (COAG, 2002, p. 14);
- The *Report of the ANZLIC Counter-Terrorism Project* (or Conybeare Report) (2003);
- The COAG Report *National Inquiry on Bushfire Mitigation and Management* (2002);
- The Parliamentary report *A Nation Charred* (2003);
- OECD's Report *Emerging Risks in the 21st Century: An Agenda for Action* (2003);
- Management Advisory Committee Report *Connecting Government: Whole of government responses to Australia's challenges* (2004);
- Catastrophic Disasters Working Group Recommendations;
- The recent formation of the National Information Management Advisory Group (NIMAG);
- The recent formation of the High Level Group on Information Management for National Security and Emergency Management; and
- The international emergency management trend towards interoperability (shared data systems and access).

The increased focus on counter-terrorism is also a driver towards the increased accessibility of data and interoperability of systems, especially for spatial data. However, there is a clear distinction between the all-hazards approach needed by emergency management agencies in the consequence management (i.e. response) of any event, and the prevention or mitigation work of intelligence or other relevant agencies. The latter are regarded as being outside the scope of this IDP.

Spatial data is not separately addressed within the EMIDP and the Data Needs Matrix except as a characteristic of the data. Other committees and groups are addressing the need for national capability in spatial data in both counter-terrorism and emergency management, only some of which is related to the EMIDP.1

1 For example, the recommendation of the Conybeare Report (2003) relating to 'core' data holdings to meet the needs of a 'counter-terrorism library' which can be used to focus jurisdictional activity and priorities in support of counter-terrorism needs and related emergency management planning and response functions (Conybeare, 2003, pp. 14–15).

1.3 STRUCTURE

The first chapter provides the background to the plan and focuses on its key drivers. It outlines governance matters in the emergency management community, noting some of the challenges that these pose when seeking to coordinate data, create information and foster knowledge for the benefit of Australian community safety. The second chapter presents an overview of emergency management, focusing on the scope and current processes.

Chapter 3 concentrates on the policy context of emergency management in Australia, emphasising how the move towards evidence-based decision making has further created a need for better information management. This provides the foundation for Chapter 4, which outlines six information priority areas in emergency management as well as further gaps and research priorities for reducing these gaps.

Chapter 5 presents action plans to address the priorities raised in the previous chapter, looking at issues such as cooperation, sharing, resourcing and implementation. This is a key chapter in the EMIDP, as it focuses on addressing the challenges put forward. The plan concludes with appendices.

1.4 STAKEHOLDERS

The EMIDP has been developed by a Working Group of agencies and organisations working within emergency services/management. The role of the EMIDPWG was to develop the IDP, representing a wide range of interests. Each Working Group member represented their constituents, bringing constituents' views to each IDP meeting, and reporting back to the broader audience as the plan progressed. After AEMC endorsement, the EMIDPWG will continue to meet as required to monitor the progress on action plans within agreed timeframes. The Working Group member agencies are listed in Diagram 1.1 EMIDP stakeholders.

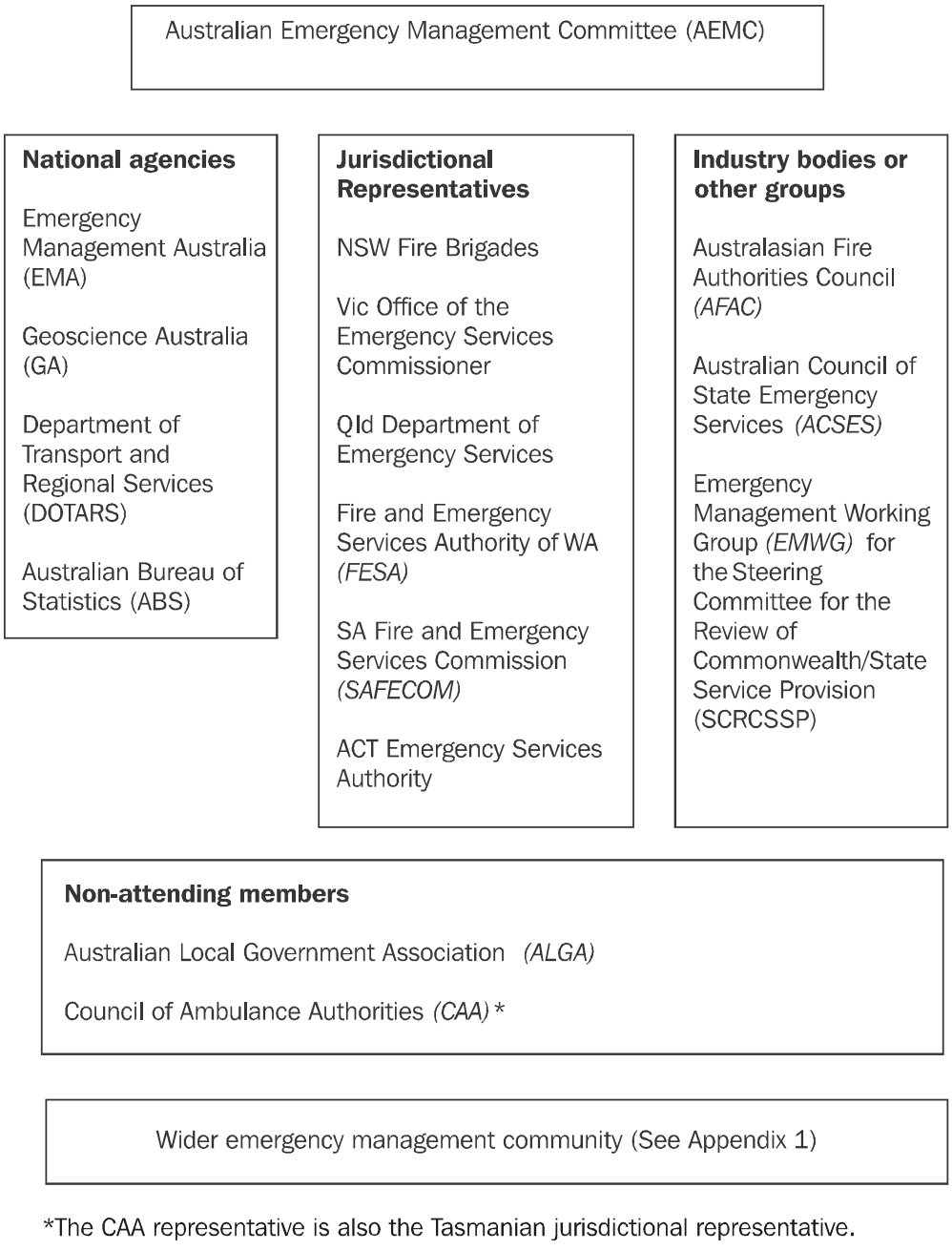
While many of the EMIDPWG are from traditional emergency service agencies, ownership of the EMIDP resides with the emergency management community (see Appendix 1). The EMIDP, particularly the Matrix, has been designed with the flexibility to encompass the needs and to benefit the wider sphere of the emergency management community which has a broader range of information needs than that of responding emergency service agencies.

For example, the information development needs for flood emergency management are broadly based across the many contributors to community safety outcomes including the emergency service response providers:

- The predictive aspects of flooding such as hydrology, meteorology, land form and remote sensing are the province of the Bureau of Meteorology, water service authorities, asset managers, environmental agencies, water resource managers, etc.
- Flood mitigation (prevention) includes legislation, development control, planning, access restriction, and earth works by local councils, planning departments, land managers, river authorities, etc.

- Preparative actions involves planning by local councils and emergency response agencies including police, environmental agencies and the emergency services, as well as the development and preparing of resources such as sandbags, flood rescue boats, crews, etc. by emergency services people, including volunteers from the affected community.
- Emergency services agencies respond to the emergency but are also critically involved in the validation of mitigation efforts i.e. will the council's levee fail?
- Recovery involves local councils, environmental, health and families/community services agencies and non-government organisations, etc.

Diagram 1.1 EMIDP stakeholders



*The CAA representative is also the Tasmanian jurisdictional representative.

1.5 BACKGROUND

In 2002, the ABS prepared the *National Statistical Requirements for Emergency Management Information Paper* to improve the general understanding of requirements for emergency management statistics and to provide a basis to assess the future role of the ABS and others in assisting development in this statistical field. This report was tabled at a meeting between the emergency management community and the ABS in July 2003. Many of the comments by attendees emphasised the need to widen the scope of the Information Paper to encompass a broader suite of information than the classification, enumeration and statistical summaries of emergency events. A subsequent meeting in November 2003 endorsed the proposal to draft a revised data needs analysis as the first step towards an IDP.

The draft emergency management data needs analysis was circulated to stakeholders prior to the Australasian Fire Authorities Council (AFAC) and Emergency Management Working Group (EMWG) meetings in February 2004 and the process towards an EMIDP was endorsed by that EMWG meeting. The first EMIDPWG meeting was held in June 2004.

Underpinning the EMIDP is a detailed Data Needs Matrix which continues to be developed and refined. The Matrix provides information on the characteristics of the data needs and development requirements for the five domains within emergency management (Risk Assessment, Risk Reduction, Readiness, Response, {Impact and} Recovery). It is intended that the Matrix serve as a living document, subject to change as implementation proceeds. The information required considers:

- existing data and data gaps;
- existing data characteristics (e.g. scope, timeliness, geography, quality and data availability) and potential gaps or areas for improvement;
- current or potential data source;
- existing metadata and metadata custodians;
- governance, applications and uses;
- service delivery and performance benefits;
- agreed priority for further development work and the mandate/responsibility for this work;
- linkages with parallel processes;
- ease of improvement (the degree of difficulty in time taken, cost, availability, technical feasibility); and
- funding availability.

The Matrix also accommodates the facility to assess progress of the work by containing measurements of:

- realistic planned development work, with timeframes, priorities and milestones;
- implementation progress; and
- an evaluation phase.

All these characteristics are then cross-classified by:

- the environmental characteristics, which include: the community, the built environment, the natural environment and the economy or business environment;

- the hazard or risk types, which have been divided into: specific natural, technological, or human-induced disasters and responses to events using a grouped taxonomy (see Appendix 2); and
- the business processes that constitute the different organisational and operational procedures within the service agencies for each of the domains.

At later meetings of the EMIDPWG in 2005, key priorities were identified and agreed upon, and a series of action plans devised. The AEMC noted a progress report in 2005 and endorsed the EMIDP in September 2006.

1.6 GOVERNANCE

To be successfully implemented, the EMIDP will depend on the goodwill and cooperation of local government, state/territory and Australian Government agencies with interests or roles in emergency management. The roles and responsibilities of the participants need to be understood clearly by all, to realise the benefits of a national approach to the use and management of the data and information covered by the EMIDP. It is proposed that the EMIDPWG undertake the governance of the EMIDP, as, over its progress, the group has developed the critical relationships among sector information specialists and amassed a body of work and expertise to support the governance role. As part of this role, the group will report to the AEMC and other national forums such as NIMAG, which the AEMC has tasked with monitoring the implementation of, and providing regular reports on, the EMIDP.

While it is recognised (in the Constitution) that the delivery of emergency services is a 'states' responsibility, there is an important role for the Australian Government in shaping the context in which the state agencies deliver services. Application of the principle of subsidiarity can assist in assigning the responsibilities of governance of the EMIDP and its implementation, thus beneficially influencing the environment in which the agencies deliver services.2

Governance of the EMIDP will take place within a complex context with many influencing factors, including:

- The tension between data access and privacy considerations;
- The need (in enumeration, legal, research or policy work), to separate the facts about the occurrance of emergencies, from those about the specific localities or persons involved;
- The tension between data ownership and access considerations;
- The information requirements of (national) security activities in the face of crime, terrorism, civil disorder and/or major disaster;
- The importance of being easily able to access and use data from different sources;
- Rapid changes in information and communication technologies;
- The growing demand by the public for transparency through open access to government information;

2 Subsidiarity is the principle which holds that nothing should be done by a larger and more complex organisation which can be done as well by a smaller and simpler organisation. In other words, any activity which can be performed by a more decentralised entity should be where there is adequate competency and capacity. The *Oxford English Dictionary* defines subsidiarity as the idea that a central authority should have a subsidiary function, performing only those tasks which cannot be performed effectively at a more immediate or local level.

- The international trend toward 'evidence-based' decision making and choice amongst policies and programs;
- The potential reduction of 'uncertainty' and 'risk' through investments in information and knowledge;
- Choice amongst the plethora of 'standards' and 'conventions' which already exist in this area;
- Contribution to agency productivity and cost control through national standardisation and economies of scale/scope;
- The substantial costs associated with data collection and management;
- The number of committees that look at information management in the emergency management sector;
- Leadership, agreements, roles and responsibilities of emergency management agencies and organisations; and
- Capability – how to utilise knowledge management within the sector and translate it into action.

CHAPTER 2 WHAT IS EMERGENCY MANAGEMENT?

2.1 SCOPE OF EMERGENCY MANAGEMENT

2.1.1 EMERGENCIES

The range of event types addressed by emergency management includes fires, medical transport and emergencies, rescues, other natural events (such as floods, earthquakes, tsunamis, landslides, heatwaves, cyclones and other storms), consequences of acts of terrorism, technological and hazardous material incidents (such as chemical spills, harmful gas leaks, radiological contamination, explosions and spills of petroleum and petroleum products), and the quarantine and control of diseases and biological contaminants (*Report on Government Services,* 2006, pp. 8.1–8.2).

2.1.2 EMERGENCY MANAGEMENT

Emergency management aims to reduce the level of risk to the community of emergencies occurring, reduce the adverse effects of emergency events and improve the level and perception of safety in the community (*Report on Government Services,* 2006, p. 8.1). Emergency Management Australia (EMA) defines emergency management as 'a range of measures to manage risks to communities and the environment' (EMA 2003). Historically, emergency management has been considered to be a broad concept encompassing the four elements of Prevention (mitigation), Preparedness, Response and Recovery (PPRR) in relation to such emergencies:

- Prevention and mitigation refers to measures taken in advance of an emergency aimed at decreasing or eliminating its impact on the community or the environment. Effective prevention activities reduce the requirement to respond to, and recover from, emergency events.
- Preparedness refers to the results of measures to ensure that, should an emergency occur, communities, resources and services are capable of responding to, and coping with, the effects.
- Response refers to the results of strategies and services to control, limit or modify the emergency to reduce its consequences.
- Recovery refers to the results of strategies and services both to return agencies to a state of preparedness after emergency situations and to support affected individuals and communities in their reconstruction of physical infrastructure and restoration of economic, social, emotional and physical wellbeing (*Report on Government Services,* 2006, p. 8.11).

The 2004 COAG *National Inquiry into Bushfire Mitigation and Management Report* further developed and adapted the PPRR framework to a '5R' risk management framework for bushfires: Research, information and analysis; Risk modification (prevention and mitigation); Readiness (preparedness); Response; and Recovery. While similar to the PPRR framework, the addition of the initial 'R' of research, information and analysis, referring to a basis of knowledge and information, has the goal of improving the efficiency and effectiveness of emergency management, particularly through consistent data gathering, collation, storage and accessibility.

While not in official use, the '5R' framework has been used in the EMIDP and the Matrix as it specifically examines risk through the analysis and synthesis of baseline data on communities, the built and natural environments and the economy, as well as the service operational business processes, to measure exposure and vulnerability. The domains are:

- Risk assessment;
- Risk reduction;

2.1.2 EMERGENCY MANAGEMENT *continued*

- Readiness;
- Response; and
- (Impact and) Recovery – considers the impact of a disaster/event as well as the recovery.

Essentially, the two frameworks of PPRR and the 5Rs attempt to represent the sentiments articulated well in the COAG Report *Natural Disasters in Australia.* The high level group of senior government officials which developed the report emphasised the absolute need to develop 'A New Approach' to ensure that:

> Australia has a world-class national framework for natural disaster management – thus achieving safer, more sustainable communities, and reduced risk, damage and losses…Central to the new approach is a systematic and widespread national process of disaster risk assessments and, most importantly, a fundamental shift in focus towards cost-effective, evidence-based disaster mitigation. This represents an historic move beyond disaster response and reaction, towards anticipation and mitigation (COAG, 2002, p. vi).

The move from response-only emergency management to one that includes mitigation represents a paradigm shift in Australia. While this has been happening in many states and local jurisdictions for many years, a comprehensive and coordinated national approach presents a challenge for Australia, but is one that is beginning to develop.

2.1.3 EMERGENCY SERVICE ORGANISATIONS

State, territory and local governments provide emergency management services to the community through a range of emergency service organisations. The objectives of emergency service organisations are to provide highly effective, efficient and accessible services that:

- reduce the adverse effects of emergencies and disasters on the Australian community;
- contribute to the management of risks to the Australian community; and
- enhance public safety (*Report on Government Services*, 2006, p. 8.10).

The events that are attended by emergency services tend to be frequently occurring, smaller scale incidents. However, emergency services also attend the larger scale emergencies.

It should be noted that the same objectives of emergency service agencies are also held by many other agencies within the broader emergency management community and that therefore their information needs may be similar.

2.1.4 DEFINITION OF EMERGENCY

The term 'emergency management' has been employed in this paper as a general term intended to include emergency services. The term 'emergency' is intended to include emergencies, events and incidents; and discussion of emergency management information includes reference to both emergency management and emergency services information.

2.2 TAXONOMY

This IDP and the needs analysis matrix use a draft taxonomy of grouped natural disasters, events and incidents. It is largely based on the Emergency Management Glossary and Thesaurus and the Emergency Management Mapping Project keywords in common use. The IDP taxonomy was created by an EMIDP sub-group, consisting of members of Emergency Management Australia, Geoscience Australia, the Department of Emergency Services in Queensland and the Australasian Fire Authorities Council. It has not yet been endorsed by any higher level group and remains subject to change (see Appendix 2 for the grouped listing).

2.3 EMIDP AND PARALLEL PROCESSES

There are currently a number of other cross-jurisdictional departmental data management processes underway within the emergency management sector. The aim of the EMIDP is to complement these processes. The overlaps that occur between the EMIDP and other processes relate to the identification of data needs and assigning a priority to these needs, whether it is a format for data (e.g. spatial) or the identification of consistent and comparable performance indicators across jurisdictions. The EMIDP assists in providing details on the need and its priority to an existing group, agency or organisation which is already responsible for this area of work within the emergency management sector. These processes include:

a) *Disaster Mitigation Program (DMAP):* DOTARS is the lead agency for addressing Reform Commitments 1 (risk assessments) and 2 (data issues) of the COAG *Natural Disaster Arrangements Report.* To assist with this work it has funded Geoscience Australia (GA) to undertake work specific to risk assessments and data issues. As part of the response to Reform Commitment 1, GA, in conjunction with DOTARS, has formed a Technical Risk Assessment Advisory Committee (TRAAC) to assist with addressing the need for systematic and consistent risk assessments across all levels of government. Reform Commitment 2 recognises the need to establish a nationally consistent system of data collection, research and analysis to ensure a sound knowledge base on natural disasters and disaster mitigation. Addressing this Reform Commitment will significantly assist implementation of Reform Commitment 1.

b) *Steering Committee for the Review of Government Service Provision:* prepares the chapter on Emergency Management for the *Report on Government Services* which is used to assess the resource needs and service performance of departments across state and territory jurisdictions. There is a need to enhance the comparability of jurisdictional data and for additional performance indicators to be developed within the emergency management sector for the Report.

c) *National Information Management Advisory Group* (*NIMAG*, previously the *Australian Disaster Information Network Working Group* {*AusDIN*}): the renaming of AusDIN follows a recommendation that the group be restructured to further their work in supporting the development of governance arrangements for general emergency management data, information and knowledge through the development of best practice guidelines and consideration of national issues raised by the Australasian Libraries in Emergency Services (ALIES), Emergency Management Spatial Information Network

Australia (EMSINA), Critical Infrastructure Protection (CIP); the Infrastructure Assurance Advisory Groups (IAAGs); and the AusDIN Portal Group.

d) *The Australian and New Zealand Land Information Council Emergency Management/Counter-Terrorism (ANZLIC EM/CT) Working Group:* collects land and spatial information on critical infrastructure in the context of counter-terrorism to provide support to response services (for example on population, population movement, buildings, types of businesses, etc.).

e) *Critical Infrastructure Protection (CIP):* part of the Australian Government Attorney General's Department, has a project to look at data on, and the dependency of, critical infrastructure, with IAAGs formed e.g. Aviation, Health, Banking & Finance, Communications, Emergency Services, Energy, Food Chain, Icons and Public Gatherings, Rail and Water Services, etc..

f) *National Spatial Information for National Security (NSINS):* a working group established by the National Counter-Terrorism Committee (NCTC) to identify the specific requirements for geospatial information in counter-terrorism, emergency management and critical infrastructure protection, and to develop solutions to existing administrative, legal, policy and technical barriers in sharing information. The Australian Government Spatial Information for National Security (AGSINS) Working Group is currently seeking to identify a core group of datasets relevant to the needs of counter-terrorism, critical infrastructure protection and emergency management agencies.

g) *EMA Linking Project:* describing the linkages between and within emergency management and associated agencies and organisations across jurisdictions.

h) *Geospatial Emergency Information Network (GEIN):* a proposed network of over 200 organisations to ensure standards for spatial information handling and delivery to the participants, where 64 priority datasets have been identified.

i) *High Level Group on Information Management for National Security and Emergency Management:* to develop recommendations on future strategic directions for information management coordination, in both the security and emergency management areas.

2.4 INFORMATION MANAGEMENT MATURITY

Emergency management agencies have recognised that, as service businesses, they rely on information and are formalising information planning and control. They are restructuring their application systems and their information-related documentation. Their business units are accountable for managing their information according to relatively recent standards and guidelines. Some agencies have information resource management policies and programs and are starting to formally manage information as a resource in much the same way as they manage assets and people. Efforts are underway to integrate information collection, storage and processing to replace the historic, disparate ways their various business units managed information. Knowledge management, and accountability for information and knowledge management, is recognised as a strategic function of the agency.

Nevertheless, the emergency management sector will need an over-riding information governance arrangement to ensure sector-wide improvement in information management maturity.

CHAPTER 3 POLICY CONTEXT

NEED FOR INFORMATION

> One of the things you find in government is that no amount of goodwill is enough, no amount of good policy direction is enough, unless you have accurate information at your disposal. And the use of taxpayer resources to achieve particular goals can be very frustrating if in fact the database on which these policies are based and the objectives pursued are inadequate, or worse inaccurate. (Prime Minister, Hon. John Howard at the launch of the Australia Research Alliance for Children and Youth, July 2002).

The above quote emphasises the importance of good quality statistical information to effective government. Confidence in official statistics allows debate to focus on what the data have to say, rather than on how they were produced.

The COAG *Natural Disasters Report* (2002) identified that one of the weaknesses of the current approach to emergency management has been a 'lack of independent and comprehensive systematic natural disaster risk assessments and natural disaster data and analysis' (p. 9). One of the reform commitments that all Australian Governments have endorsed is No. 2 '...establish a nationally consistent system of data collection, research and analysis to ensure a sound knowledge base on natural disasters and disaster mitigation' (p. 14).

While the report's focus was on natural disasters, with an emphasis on mitigation, the EMIDP is, in part, a response to that commitment, applying however, the wider all-agencies, all-hazards approach.

3.1 KEY DRIVERS OF CHANGE

The historical influences for emergency management include a philosophy embedded in a response to, and recovery from, events i.e. a reactive model. However, the increasing interaction between 'natural' and 'human-caused' events, as well as the regular occurrence of disasters in recent times, and the focus on their cost, both socially and economically, have brought about changes in the way in which emergency events need to be considered. It has been recognised that emergency management is a 'whole-of-government' issue, encompassing federal, state and local government agencies, and including industry and the community. Emergency management agencies recognise that they need to spend more effort on prevention and mitigation, i.e. emergency risk management, coupled with the need to adopt a community centred approach. Research into the effects of disasters on communities has highlighted significant gaps in knowledge on what is really meant by 'community safety'. Further research could contribute to enhanced knowledge and mutual understanding of constructs such as community centred and community safety.

In addition, governments that have traditionally been prepared to increase emergency agencies' budgets have applied much greater scrutiny in recent years; especially as the level of emergency response requirements have become much more sophisticated and demanding.

The development of business cases for budget increases requires that there be models able to demonstrate returns on money invested. This has significantly increased the demand for better information about the whole gamut of emergency management

activities, outputs, outcomes and effectiveness. While this activity is, comparatively speaking, in early days, we are in the midst of a major period of development in improved information management in emergency management.

Basically, the matter can be summed up as *better information for better decision making.* This applies across all activities: management, resourcing, strategic planning, and operations.

Delivering a more comprehensive range of information to decision makers in the emergency management sector will require groups of agencies to work together with the goal of increasing the availability, accessibility and useability of information derived from key administrative and survey datasets.

3.2 INFORMATION NEEDS OF DECISION MAKERS

3.2.1 GOVERNMENTS

Government departments need to provide advice on formulating government policy and legislation and on monitoring and reviewing existing programs. In addition, there are increasing requirements for evidence-based policy and program development and evaluation as well as a need within the sector for a 'whole-of-government' approach. Ministers and other representatives require information including statistics to assess policy options and resource allocation issues, answer questions in Parliament and respond to media reports. Standing committees and other high level Ministerial councils that focus on particular aspects of emergency management need detailed information to support their work.

Ministers, advisors and government officials need information to provide them with an understanding of emergency management problems and policy options including:

- risk of damage arising from particular types of emergencies;
- possible costs to the community and to the government; and
- options for investment in reducing risk/damage.

In developing state and national emergency management policy, Ministers and government officials need information to enable them to evaluate:

- the impact of legislation and policies on risk and emergencies;
- the effectiveness of existing and proposed emergency management programs;
- funding and cost issues; and
- community perceptions and attitudes to emergency management and emergency services.

As part of the government process, special committees, commissions and task forces often require data on a wide range of topics (e.g. mitigation measures, community vulnerability and resilience, land use planning and emergency services volunteers), while coronial and judicial inquiries require operational details surrounding death, injuries or significant property loss.

3.2.2 SENIOR EXECUTIVES OF EMERGENCY SERVICES/MANAGEMENT ORGANISATIONS

Emergency services/management organisations need data for management purposes, to support corporate and strategic planning, allocate resources and to evaluate service effectiveness. Executives need to be able to assess the action necessary to: prevent or minimise the impact of emergencies; assess the efficiency and effectiveness of prevention, preparedness and recovery programs; anticipate changing trends in emergencies; and to respond appropriately.

Key issues that emergency services/management organisations consider at the Australian and state/territory levels include:

- resource allocation and planning to deal effectively with major threats both traditional and emerging;
- development and delivery of best practice information and training programs;
- improving communications with the community and raising community self-reliance;
- assessing the effectiveness of regulatory arrangements and other mitigation strategies;
- assessing the effectiveness of service delivery to the community; and
- coordination of the Australian Government's financial and technical assistance to the states/territories in the event of large scale emergencies.

In developing submissions on planning and resource allocation senior executives need to know:

- how the physical and socio-economic profile of a region influences the frequency and impact of emergencies;
- the relationship between emergency prevention, preparedness response measures and emergency impact; and
- factors influencing workloads of the emergency services.

In justifying requests to State Treasury or the Commonwealth Grants Commission, senior executives need to know:

- the frequencies and impacts of emergencies in the state and variations over time;
- comparisons with other states; and
- cost relativities with other states/territories.

In responding to questions on emergency services performance, senior executives need to know:

- the effectiveness of emergency services and others at preventing or minimising the impact of emergencies;
- the types of emergencies to which emergency services are responding; and
- whether differing practices and procedures affect the frequencies and impacts of emergencies.

Local governments and community councils are also emergency management organisations, with roles throughout the emergency management cycle and a particular role in planning and recovery. They hold data on matters such as flood or bushfire risk for land planning and zoning, and require data for service definition and community program initiatives.

There is a large range of other state or local bodies which formulate hazard mitigation options using emergency management statistics. Into this group fall catchment and water management bodies, health and community safety groups, etc. (see Appendix 1).

3.3 OTHER USERS

Examples of other users of emergency management information include:

- the public and the media, to gain information about the frequency and impact of emergencies and the effectiveness of agencies in preparing for them, responding to them, and helping communities and households recover;
- insurance organisations, which require information on the type, occurrence, impact and distribution of emergencies to assist with the development and provision of their services; and
- private businesses that require information about the risk and vulnerability of communities and areas to emergency events when making commercial decisions, such as resource allocation.

3.4 ROLE OF RESEARCH INSTITUTES

Many of the questions for which governments and/or emergency management agencies need answers must first be referred to the research community to provide improved information, analysis, understanding, modelling and evidence.

Researchers from universities and government research organisations need data to facilitate research on emergency mitigation, preparedness, response and recovery strategies; undertake cost-benefit analyses; assess the impact of emergencies on society; assess the risk of emergencies occurring; and to understand the ways in which particular groups or communities may be disadvantaged in the emergency management process.

In advising emergency management agencies and government, researchers may need to describe relationships between emergencies, emergency management and society. In so doing, they need to identify:

- the frequencies and impacts of emergencies;
- ways that society can limit the frequencies and impacts of emergencies;
- the relationship between emergency management measures/strategies and the impacts/frequencies of emergencies;
- improved ways for emergency management agencies to influence those relationships;
- the exposure and vulnerability of society to emergencies and how society recovers from/manages the impacts of emergencies; and
- groups most and least vulnerable to emergencies and those most and least affected.

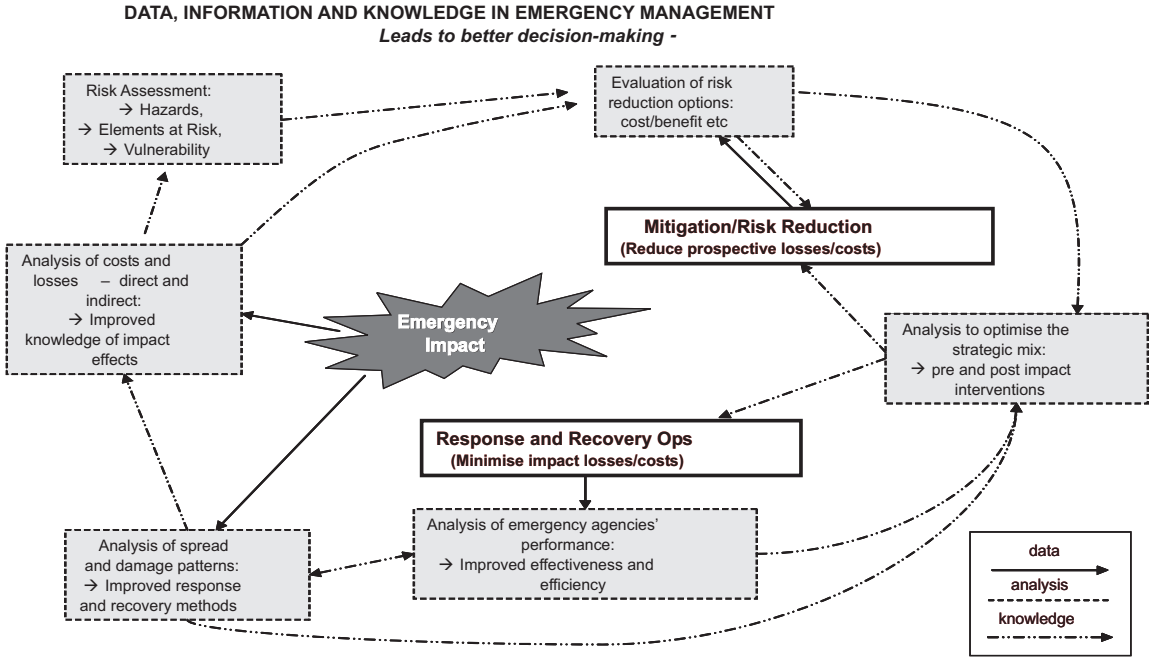
Australian emergency management has traditionally been weak in its use of research institutes to provide improved knowledge. However, this is changing, and there is a rapid growth of interest and investment in emergency management research in its many forms, mainly by government funded agencies.

For their part, researchers are learning to work with emergency agencies to assist in articulating research needs, as well as assisting in providing the answers.

3.5 DATA, INFORMATION AND KNOWLEDGE

3.5.1 A POSSIBLE EMERGENCY MANAGEMENT DATA AND INFORMATION MODEL

The following diagram illustrates the elements of data, information and knowledge that relate to the various activities under emergency management.



The initiating element is the emergency event, be it flood, bushfire, earthquake or other hazard type. This is the interaction between the initiating phenomenon and the environment that causes destruction or damage, and that we as human society want to modify.

Two societal responses to emergencies are directed to reducing their impact. These are: emergency operations i.e. response and recovery operations to reduce the impact when emergencies occur; and risk reduction which seeks to reduce the impact when emergencies are not occurring. These are the two emphases and are focal points of the diagram.

Data from emergency events, and response and recovery operations, when analysed, provides information for improving operational effectiveness, efficiency and methods, but also feeds information to analysis of the costs and losses resulting from the emergency and the operational response to it. Analysis of many emergency events can enable the development of predictive models. These can feed into risk assessment, which combines information about hazards, the nature of the elements and risk and their vulnerability to loss/damage.

Having done a risk assessment, the next stage is to generate risk reduction options to reduce the risk through reducing the hazard, the exposure or the vulnerability. Options for reducing the impact of emergencies by risk reduction and/or by operational efforts could be evaluated and compared. If sufficient information were available, it is possible to evaluate the strategic mix between the ranges of interventions. Note that this also

3.5.1 A POSSIBLE EMERGENCY MANAGEMENT DATA AND INFORMATION MODEL *continued*

incorporates the information available from analysis of what emergency agencies can do, and the analysis of damage patterns.

The following conclusions emerge from this model:

- It is a complex system, with complex interdependencies.
- Most participants see only part of it, not the whole and there is potential for gaps and overlaps in what people are doing.
- All parts are interconnected and important.
- Ideally, all parts would progress, in step to some extent, with each other.
- If it is a system, it needs the additional elements of monitoring and governance which would enable it to produce improved results more efficiently.
- This representation is a simplification – there are probably as many systems as there are emergency risks and networks of agencies.

3.5.2 TURNING DATA INTO INFORMATION

There is a difference between the provision of data and its transformation into information. This process involves being able to think analytically about the data, then being able to 'tell a story' about the data and put it into a context which makes sense to the intended audience. The story can include such things as the purpose of the data, the logical flow of the points made and the requisite detail (or brevity) to tell the story well and not to be repetitive. Within many fields (such as emergency management) there is the need to transfer research data (information) into public sector benefit, often through the mediation of a policy entrepreneur who has the particular skills to be an effective communicator in this area.

3.5.3 ACCESS TO DATA

One of the key needs of emergency management managers is to be able to obtain access to a variety of databases and/or systems, including those of non-government organisations, and for the interoperability of such databases and/or systems across national, state and local jurisdictions. These databases/systems can be real-time for immediate response during an emergency (not considered specifically here), or static, requiring further research and analysis. Agencies also need to have access to suitable services which allow them to ensure consistency and data comparability. The National Data Network (NDN), presently under development by the ABS and in demonstration phase, has been designed to meet the requirements of evidence-based decision making by identifying what statistics are available from government agencies. It will provide infrastructure, protocols, standards, and services to support the sharing and integration of data across Australia. It will be specifically developed to increase the availability, accessibility, and useability of information sources relevant to policy analysis and research – particularly key administrative and survey datasets held by state and federal government agencies.

3.5.4 METADATA

Assessing the quality of the data is an important part of knowing how to use it. The provision of metadata (data about data) allows users of the data to assess whether the data is 'fit for purpose'. For example, the ABS Quality Framework looks at:

- relevance – to what extent does the data reflect the key needs of user;
- accuracy – degree to which the data correctly describes what it was designed to measure;
- timeliness – how current is the data;
- accessibility – how easy is the data to access;

3.5.4 METADATA *continued*

- interpretability – availability of the supplementary information and metadata necessary to interpret and use the data; and
- coherence – degree to which the data can be successfully brought together with other statistical information.

Within the NDN, metadata will be stored as a NDN Data Resource Description which describes the data and how it can be accessed. It will reflect international standards and other metadata standards used by the Australian Government. NDN Data Resource Descriptions will document key aspects of the data and will be the base for searches across the network. This metadata will be compiled in the central NDN Metadata Repository and regularly updated. Metadata standards for the NDN are being developed in consultation with other key stakeholders e.g. ANZLIC metadata standard, which is specific to geospatial data, and the Australian Government Locator Service, which has a broader coverage.

CHAPTER 4 KEY PRIORITY AREAS

4.1 OVERVIEW

This section of the plan summarises the six key priority information gaps within emergency management formulated by the EMIDPWG and proposals for the development of sources to fill these gaps. These key priorities were chosen after consideration of the high priority needs identified in the Matrix (see Appendix 3) and then grouped in six broad categories. The listed priority areas are:

- Overarching costs: social, economic and environmental;
- Theoretical issues: methodologies, tools, standards, definitions, systems;
- Agency/industry issues: return on investment, risk based resource allocation and performance management, prevention/mitigation versus response and recovery;
- Community issues: volunteers and community networks;
- Specific hazards; and
- Emerging issues: water and climate change.

These priorities reflect cross-jurisdictional needs, gaps, deficiencies with existing data and the need for improved coverage, comparability, access to, and quality of, emergency management statistics. The order in which each priority area is presented does not imply any ranking by importance.

While these priorities may initially reflect the needs of the more traditional emergency services agencies involved on the Working Group, many of these priorities have a broad scope (e.g. the theoretical issues) and have the potential to be of interest and use to many in the wider emergency management community. The EMIDP publication, being mainly static, cannot truly reflect the changing and additional information needs and development work of this wider community, especially given its broad and disparate scope. However, the Matrix has been designed to include the information needs and potential development work of the wider emergency management community and will be circulated widely and updated regularly to reflect these changing needs. It is hoped that the next iteration of the EMIDP will contain additional priorities raised by the wider emergency management community.

For each of the six priority areas, *Outcomes sought* describes the intended result of implementing the plan. *User context* summarises the statistical needs (demand side) that emerged through consultation.

4.2 PRIORITY AREA: UNDERSTANDING THE FULL IMPACT OF COSTS (ECONOMIC, SOCIAL AND ENVIRONMENTAL) OF EMERGENCIES

OUTCOMES SOUGHT

The provision of detailed cost-benefit data to support informed decision making and enable more efficient distribution of emergency management resources between mitigation and response activities, as well as providing models for effective recovery management. These data will provide a fuller understanding of the impact of all costs associated with emergency management and allow more effective targeting of service delivery leading to safer communities. In addition, new data standards would be created for the emergency management sector.

USER CONTEXT

Recent COAG reviews (including Natural Disasters Reform Commitment 2) have highlighted the need for more comprehensive data on the full costs of emergencies and emergency risk management services to enable governments and communities to identify the most cost-effective mix of risk based emergency management investment in Prevention, Preparedness, Response and Recovery (PPRR) interventions across all hazards. At present, collating all the available data necessary to identify the total costs of emergency risk management within a community is extremely difficult and beyond the capacity of most researchers. Some of the key data required is currently not collected or not accessed by emergency services at all. Case studies tend to focus on one disaster or type of emergency rather than allow an all-hazards view of the cost-benefit of emergency risk management investment.

4.3 PRIORITY AREA: BETTER MODELS AND TOOLS TO ALLOCATE INVESTMENT ACROSS PREVENTION, PREPAREDNESS, RESPONSE AND RECOVERY (PPRR)

OUTCOMES SOUGHT

There is a need for a methodology for assessing resource needs and priorities within emergency management, tools to facilitate emergency management policy exploration and decision support, options for performance management and productivity, and a framework for evaluating the effectiveness of emergency service investment to optimise community risk treatment. These improved models and tools would lower the economic, financial and social costs of emergencies through more cost-effective emergency management service delivery.

USER CONTEXT

The current level of research in developing models and tools to optimise resource allocation across the emergency management spectrum (PPRR), and to improve community safety, is inadequate and uncoordinated. COAG's Natural Disasters' Reform Commitment 2 requires the 'establishment of a nationally consistent system of data collection, research and analysis to ensure a sound knowledge base on natural disasters and disaster mitigation'. This priority project will contribute to this reform commitment and will provide information to agencies on the most effective way of allocating investment across the PPRR spectrum to increase community safety and reduce the costs and social effects of emergencies and disasters.

4.4 PRIORITY AREA: VOLUNTEERS IN THE COMMUNITY

OUTCOMES SOUGHT

Quantification of the contribution of volunteers to national emergency services to enable a better basis for management of volunteers within the sector. This would provide a rationale for community building by providing appropriate support for volunteers within the community.

USER CONTEXT

No consolidated national data exists to assess the profile and contribution of emergency services volunteers or the impact of structural change and other socio-economic factors. There is therefore a need for information on emergency services volunteers to better understand the contribution of volunteers within emergency management for effective performance measurement and data interpretation. Better data is also needed to improve the management of volunteers and their work within the community.

4.5 PRIORITY AREA: ASSESSING THE IMPACT OF EMERGENCIES ON THE COMMUNITY

OUTCOMES SOUGHT

A common framework for assessing the impact of emergencies on communities, including standards and definitions, to support provision of consistent and comparable data. Ensuring consistency and comparability across jurisdictions, agencies and other organisations involved in emergency management will provide a better rationale or basis for requests for support before, during and after emergencies. A consistent set of national data and indicators to assess community recovery from emergencies to provide better recovery outcomes.

USER CONTEXT

Strong needs were identified by COAG in both policy and data areas, particularly in the recommendations from the 2002 *Natural Disasters in Australia Report*, regarding the need for nationally consistent data collection research and analysis (Reform Commitment 2). There is a need to develop a consistent set of national data and indicators to improve understanding of the contribution of social and community networks before, during and after emergencies. At present, variable approaches are used across and within national agencies, state/territory jurisdictions, local councils, insurance agencies and other organisations regarding the comprehensive quantification of the impact of emergencies. A framework is needed to improve data consistency before and during emergencies and for the short, medium and long term after emergencies.

There are currently inconsistencies in information available on post-emergency recovery support programs and community outcomes. There is a need to quantify the demand for services by consistent definitions of type, duration cost and provider; a need to choose between models of service delivery; a need to report on coordinated case management approaches and to assess the success of support services, including counselling.

4.6 PRIORITY AREA: INFORMATION ON SPECIFIC HAZARDS

OUTCOMES SOUGHT

Better understanding of the risks and vulnerabilities of Australian communities to specific hazards such as cyclones, storm tides/storm surges, severe winds and floods. This better understanding would inform and enhance the emergency management response and recovery systems in Australia to these disasters and lead to a better basis for preparation, mitigation and recovery. It will also help inform the process of addressing COAG Reform Commitment 1.

USER CONTEXT

Understanding of, and information on, the risk reduction, readiness and response to specific hazards could serve to reduce the impact of these hazards and reduce recovery time and costs. There is also a need for more information on multi-agency events and how these are coordinated by emergency service agencies.

4.7 PRIORITY AREA: A GREATER UNDERSTANDING OF THE INFLUENCE OF OUR ENVIRONMENT ON THE MANAGEMENT OF EMERGENCIES

OUTCOMES SOUGHT

Broader, evidence-based knowledge is needed on the influence of environmental factors on the probability, frequency and consequence of natural hazard events. In particular, a better understanding of:

- Water resources: the availability of water for emergency management planning is essential to reducing hazards and responding to emergencies; and
- Climate Change: the impact of environmental changes on emergency management is essential to planning for preparedness, in Australia and throughout the Asia-Pacific region. The emergency management sector needs to contribute to an informed debate on options for Australia associated with climate change.

USER CONTEXT

Water is a scarce resource, but also a key component of Australia's emergency management capacity. No national data exists for the impact of emergency services on water supply and quality (e.g. volume of water used, including overuse, extent the water table is contaminated by run-off, re-use, grey water, etc.).

Global and local forces are changing the environment with effects including global warming, increase/decrease in rain and more extreme weather events. Investigation of our 'Greenhouse vulnerability' has produced computer models and data, but there needs to be better application of research data to the emergency management sector (planning, mitigation, etc.).

CHAPTER 5 ACTION TO ADDRESS PRIORITY AREAS

5.1 INTRODUCTION

The EMIDPWG has developed draft actions to close these key priority information gaps within emergency management. The action plans are mainly at a broad strategic level with some more detailed tasks provided as examples of the sort of work which could be undertaken to meet the information need. Members of the EMIDPWG will consult with their jurisdictions' stakeholders in regard to the further work needed to scope the implementation of the plans with additional detailed tasks and activities. This will be on-going, with decisions on implementation of the plans to be made as the work progresses.

For this reason, this chapter of the EMIDP should not be considered a static document. As work progresses, the operational tasks for the plans will change over time to allow a full exploration of a solution to the key priority need to meet the desired outcome. While it would be preferable to update this chapter on a regular basis, the nature of the published document does not allow such updating. However, since the action plans also link strongly to the data needs matrix, which has been designed as a living document and which will be updated on a regular basis, there will be the opportunity for all stakeholders and for the whole emergency management community to monitor the progress of the action plans over time.

5.2 PRIORITY AREA: UNDERSTANDING THE FULL IMPACT OF COSTS (ECONOMIC, SOCIAL AND ENVIRONMENTAL) OF EMERGENCIES

Outcomes: where do we want to be in three years
To understand more about the full costs of emergencies to enable more efficient distribution of emergency management resources between mitigation and response activities as well as providing models for effective recovery management.

Task/activity	Status	Lead agency(ies)
Development of loss assessment frameworks and guidelines	Underway	Bureau of Transport Economics (BTE) 2001; EMA and Qld Department of Emergency Services (2002) and Royal Melbourne Institute of Technology University (RMIT).
This activity could be informed by consistent cost data collection across agencies and jurisdictions, maps of state Natural Disaster Relief Arrangements (NDRA) cost distributions and an NDRA database with 10 years of disaster events.		DOTARS – leading work to improve collection of data as part of the NDRA process.
Establishment of Emergency Risk Management Data Clearing houses in diverse communities to enable comprehensive longitudinal microcosm studies.		
Study locations should provide good indicative data on the impact of a range of hazards on the community, economy and natural environment and should have a unique major disaster risk e.g. Cairns, Qld (cyclones), Wollongong, NSW (storms and floods) and a bushfire-prone area such as in SA or the Blue Mountains, NSW. Key processes for these clearing houses might include:		
a) confirmation of selection criteria for selection of sites;	Significant work required	AEMC for endorsement and lead agency to be determined
b) establishment of Governance Committees and frameworks;	Significant work required	Governance Committee and lead agency (to be determined)
c) stakeholder analysis, project plans, identification of data scope and links with current initiatives;	Significant work required	Governance Committee and lead agency (to be determined)
d) establishment of microcosm study clearing houses;	Significant work required	To be determined
e) retrospective and prospective data collection for up to 10 years including data on the social impacts of emergencies and emergency risk management;	Significant work required	To be determined
f) evaluation of emergency risk management investment strategies; and	Significant work required	To be determined
g) identification of national data standards and collation arrangements.	Significant work required	To be determined

5.3 PRIORITY AREA: BETTER MODELS AND TOOLS TO ALLOCATE INVESTMENT A PREVENTION, PREPAREDNESS, RESPONSE AND RECOVERY (PPRR)

Outcomes: where do we want to be in three years
To have a methodology for assessing resource needs and priorities within emergency management, tools to facilitate emergency management policy exploration and decision support, and a framework for evaluating the effectiveness of emergency service investment to optimise community risk treatment.

Task/activity	Status	Lead agency(ies)
Development of risk assessment models	Underway	DOTARS, GA and EMA and the Technical Risk Assessment Advisory Committee (TRAAC)
Establishment of a research grants program to investigate and develop these models and tools	Significant work required	AEMC for endorsement and lead agency to be determined

5.4 PRIORITY AREA: VOLUNTEERS IN THE COMMUNITY

Outcomes: where do we want to be in three years
Quantification of the contribution of volunteers to national emergency services.

Task/activity	Status	Lead agency(ies)
Compilation of statistics and other evidence-based data on volunteers.	Some work required	
This could include:		
a) ABS survey statistics on volunteers and		ABS
b) data from jurisdictions that includes performance indicators on volunteers for the *Report on Government Services.*		State/territory emergency management agencies
c) peak bodies data.	Some work required	Australian Council of State and Territory Emergency Services (ACSES), Australasian Fire Authorities Council (AFAC) and Council of Ambulance Authorities (CAA)
d) research centre and other research agency projects contributing to this priority.	Some work required	Bushfire Cooperative Research Centre (CRC)
Survey data about volunteers obtained from emergency services organisations and peak bodies and the production of a national report.	Significant work required	Australian Emergency Management Committee for endorsement and lead agency to be determined

5.5 PRIORITY AREA: ASSESSING THE IMPACT OF EMERGENCIES ON THE COMMUNITY

Outcomes: where do we want to be in three years
To have a common framework for emergency impact assessment on communities. This would include standards and definitions to support provision of consistent and comparable national data and to provide better recovery outcomes.

Task/activity	Status	Lead agency(ies)
Redevelopment of the *Australian Emergency Management Manual – Disaster Recovery*	Completed	EMA and Department of Family, Community Services and Indigenous Affairs (FaCSIA)
Development of a Post-Disaster Survey collection instrument	Underway	Geoscience Australia
Work towards more consistent and comparable insurance data	Underway	Insurance Council of Australia (ICA)
Development of research centre projects	Underway	Bushfire CRC
Collation of ABS Social Capital data	Underway	ABS
Development of a consistent set of national data and indicators to:		
a) improve understanding of the contribution of social and community networks before and during emergencies; and	Significant work required	Australian Emergency Management Committee for endorsement and lead agency to be determined
b) assess community recovery from emergencies.	Significant work required	
Publication of a report outlining:	Significant work required	Australian Emergency Management Committee for endorsement and lead agency to be determined.
a) successful core principles and approaches to community recovery based in practice, including suggested national indicators; and		
b) assessment and evaluation of community recovery plans and programs and their success in relation to a specific recent significant emergency event or events.		

5.6 PRIORITY AREA: INFORMATION ON SPECIFIC HAZARDS

Outcomes:: where do we want to be in three years
To have data to fill information gaps to better understand specific hazards such as cyclones, storm tides/storm surges, severe winds and floods.

Task/activity	Status	Lead agency(ies)
Development of the National Risk Assessment Framework.	Underway	TRAAC
Alignment/consolidation of data collection efforts by national and state/territory agencies and groups	Underway	Geoscience Australia and other agencies and organisations which collect data on natural hazards
Identification of, analysis and documentation of existing programs and projects e.g. Natural Disaster Risk Management Studies Program (NDRMSP) and National Disaster Mitigation Program (NDMP) research studies, Climate Change and Vulnerability of Coastal Communities to Tropical Cyclones Project	Underway	Australian Emergency Management Committee for endorsement and lead agency to be determined. A number of research organisations and state/territory agency programs and projects are in progress
Establishment of working groups and collection groups including:		
a) two national sub-working groups for flood data collection and cyclone data collection and	Significant work required	Australian Emergency Management Committee for endorsement and lead agency to be determined
b) a Flood Data Collection Group and a Cyclone Data Collection Group	Significant work required	Flood Data Collection Group lead agency to be determined; Cyclone Data Collection Group lead agency to be the Bureau of Meteorology (BoM)
Improvement in data on cyclones, storm tides and surges, severe winds and floods through:		
a) the development of strategic and operational plans; and	Significant work required	To be determined
b) the conduct of projects, including developing improved models for a combined risk and a combined effect of storm tide and river flood events.	Significant work required	To be determined

5.7 PRIORITY AREA: A GREATER UNDERSTANDING OF THE INFLUENCE OF OUR ENVIRONMENT ON THE MANAGEMENT OF EMERGENCIES

Outcomes: where do we want to be in three years
The emergency management sector to:
a) influence the debate in Australia on environmental change; and
b) understand more about water supply, use, reuse and quality and to influence debate in this area as well.

Task/activity (climate change)	Status	Lead agency(ies)
Identification of current research and data collection by environmental agencies and organisations, both nationally and internationally including:	Underway	
a) Consideration and further analysis of data for Australia's Fourth National Communication on Climate Change or subsequent communications;		Australian Greenhouse Office (AGO)
b) The development and utilisation of the Australian Greenhouse Emissions Information System (AEGIS); and		AGO
c) Investigation of data availability, accessibility and interoperability, including climate change models important to emergency management.		Commonwealth Scientific and Industrial Research Organisation (CSIRO)
Further discussion of the report *Climate Change, Risk and Vulnerability* that details the expected effects of climate change nationally and globally.	Released	
Include climate change issues in the development of an emergency management risk assessment framework.	Underway	Geoscience Australia, in collaboration with DOTARS, AGO, BoM, CSIRO and EMA
Increase representation of the emergency management sector in forums relating to environmental issues; for example, by:		
a) Nominating an AEMC member as environmental representative; and	Significant work required	Australian Emergency Management Committee
b) Improving liaison with Australian Greenhouse Office at the Department of the Environment and Heritage, CSIRO, BoM and other states/territories agencies at both a strategic and operational level.	Significant work required	To be determined
Help create models to investigate climate changes and their effects on Australia's social, natural and economic environments, natural disasters and how to mitigate such effects	Significant work required	To be determined

Task/activity (water)	Status	Lead agency(ies)
Assess the need to undertake a survey on the impact of emergency services on water supply and quality.	Significant work required	To be determined
Undertake research on availability of other sources or water data.	Significant work required	To be determined

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACSES	Australian Council of State and Territory Emergency Services
AEGIS	Australian Greenhouse Emissions Information System
AEMC	Australian Emergency Management Council
AFAC	Australasian Fire Authorities Council
AGO	Australian Greenhouse Office
ALGA	Australian Local Government Association
AusDIN	Australian Disaster Information Network
BoM	Bureau of Meteorology
BTE	Bureau of Transport Economics
CAA	Council of Ambulance Authorities
CEO	chief executive officer
CIP	critical infrastructure protection
COAG	Council of Australian Governments
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
DOTARS	Australian Government Department of Transport and Regional Services
EMA	Emergency Management Australia
EMIDP	Emergency Management Information Development Plan
EMIDPWG	Emergency Management Information Development Plan Working Group
EMSINA	Emergency Management Spatial Information Network of Australia
EMWG	Emergency Management Working Group
FaCSIA	Australian Government Department of Families, Community Services and Indigenous Affairs
FESA	Fire and Emergency Services Authority of Western Australia
GA	Geoscience Australia
ICA	Insurance Council of Australia
IDP	Information Development Plan
MFESB	Metropolitan Fire and Emergency Services Board
NDMP	National Disaster Mitigation Programme
NDRA	Natural Disaster Relief Arrangements
NDRMSP	Natural Disaster Risk Management Studies Program
NHRC	Natural Hazards Research Centre (Macquarie University)
NIMAG	National Information Management Advisory Group
PC	Productivity Commission
PPRR	prevention, preparedness, response and recovery
RMIT	Royal Melbourne Institute of Technology
SAFECOM	South Australian Fire and Emergency Services Commission
SCRCSSP	Steering Committee for the Review of Commonwealth/State Service Provision
SEMC	State Emergency Management Committee
SES	State Emergency Service
TRAAC	Technical Risk Assessment Advisory Committee
VICSES	Victoria State Emergency Service

APPENDIX 1 EMERGENCY MANAGEMENT COMMUNITY LIST

LIST AS AT JULY 2006

The following is a listing of agencies which have been identified as part of the emergency management community, though not exhaustive due to the broad nature of the sector. Those which have been consulted to date are marked with an asterisk. Please note that some of the earlier consultation was through the Emergency Management Committees.

NATIONAL ADMINISTRATIVE AGENCIES

Emergency Management Australia (EMA)*

Department of Transport and Regional Services, Natural Disaster Relief Arrangements (NDRA) and Territories and Local Government Division, National Office of Local Government (DOTARS)*

Geoscience Australia (GA)*

Bureau of Meteorology (BoM)*

Productivity Commission (PC)*

Health and Aged Care

Department of Agriculture, Fisheries and Forestry (DAFF)

Family, Community Services and Indigenous Affairs (FaCSIA) (and Centrelink)

Australian Maritime Safety Authority

Australian Agency for International Development (AusAID)

Australian Federal Police

Australian Army

Australian Communications Authority

Australian Hydrographic Service

Royal Flying Doctor Service

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

NATIONAL INDUSTRY ORGANISATIONS AND ASSOCIATIONS

Australasian Fire Authorities Council (AFAC) – National Data Committee*

Convention of Ambulance Authorities (CAA)*

Australian Council of State Emergency Services (ACSES)*

Australian Local Government Association (ALGA)*

OPERATIONAL AGENCIES

NSW Fire Brigades*

NSW Rural Fire Service

Ambulance Service of NSW

NSW State Emergency Service (NSW SES)*

Victorian Office of the Emergency Services Commissioner, Victorian Department of Justice*

Metropolitan Fire and Emergency Services Board (MFESB)*, Melbourne

Victorian Country Fire Authority

Metropolitan Ambulance Service, Melbourne

Alexandra and District Ambulance Service, Victoria

Victoria State Emergency Service (VICSES)*

Emergency Services Telecommunications Authority (ESTA)

Rural Ambulance Victoria

Qld Department of Emergency Services*

State Disaster Management Group (Qld)*

OPERATIONAL AGENCIES *continued*

Qld Ambulance Service

SA Fire and Emergency Services Commission (SAFECOM)

SA Security and Emergency Management Office

SA Ambulance Service

Fire and Emergency Services Authority of WA (FESA)*

St John Ambulance Australia – WA Ambulance Service*

Tasmanian Fire Commission

Tasmanian Fire Service

Tasmanian Ambulance Service

Tasmania State Emergency Service*

NT Department of Police, Fire and Emergency Services*

NT Fire and Rescue Service

St John Ambulance Australia – NT Ambulance Service

ACT Emergency Services Authority* (including ACT Fire Brigades and ACT Rural Fire Service)

ACT Territory Emergency Service

ACT Ambulance Service

Other state/territory agencies in the wider emergency management community e.g.

- Agriculture
- Catchment Authorities
- Environmental
- Health
- Land and Water Management
- Local Government
- Main Roads or Roads and Traffic Authorities
- Motor Vehicle/Transport Accident
- Natural Resources
- Planning
- Police
- Premiers/Cabinet
- Public Works
- Roads/Transport Safety
- Treasuries

STEERING GROUPS AND COMMITTEES

Commonwealth Counter-Disaster Task Force

Australian Emergency Management Committee

AusDIN Steering Committee

National Disaster Relief (Health) Committee

Australian Health Disaster Medicine Policy Committee

Disaster Recovery Sub-committee of the Community Services Ministers Advisory Committee

AusDIN Portal Group – Emergency Management Spatial Information Network of Australia (EMSINA)

STEERING GROUPS AND COMMITTEES *continued*	State/Territory Disaster Management Organisations - each state/territory has established a peak committee of senior members of appropriate departments and agencies to consider emergency management matters. e.g. NSW State Emergency Management Committee (SEMC)*, Victoria Emergency Management Council*, State Disaster Management Group (Qld), State Disaster Committee SA*, State Emergency Management Committee WA*, State Disaster Committee Tas.*, ACT Emergency Management Committee*, NT Counter Disaster Council*
	Steering Committee for the Review of Commonwealth/State Service Provision (SCRCSSP): Emergency Management CEOs Group and Emergency Management Working Group*
	And other groups and committees which could overlap the emergency management sector e.g. climate change, water, air and marine safety, etc.
RESEARCH	Centre for Risk and Community Safety Research, Royal Melbourne Institute of Technology University (RMIT)*
	Natural Hazards Research Centre (NHRC), School of Earth Science, Macquarie University*
	Bushfire Cooperative Research Centre (CRC)
	Centre for Disaster Studies, James Cook University
	Tropical Savannah CRC
	And other research groups which investigate aspects of emergency events such as transport accidents (road, rail, air, marine), fire (arson), etc.
OTHER	Insurance Council of Australia (ICA)
	Insurance Disaster Response Organisation
	Standards Australia
	Australian Building Code Board
	Waters and Rivers Commissions
	And many others.

TAXONOMY OF NATURAL, TECHNOLOGICAL OR HUMAN-INDUCED DISASTERS AND RESPONSES TO EVENTS

NATURAL DISASTERS	Earthquakes (include other geohazards e.g. tremors, strong ground motions, etc.)
	Fires
	Bushfires
	Landscape fires (include wildfires)
	Floods (include flash floods and river floods)
	Landslides (include land slips, mudslides, mudslips, rockfalls, rockslides, avalanches)
	Storms
	Cyclones (include hurricanes, typhoons)
	Severe storms (include thunderstorms, lightning strikes, hail, tornadoes, gales, squalls, blizzards, ice storms, dust or sand storms)
	Storm tides and surges (include tidal or sea surges, tidal bores)
	Tsunamis
	Other natural disasters e.g. all plant, animal and human diseases, drought, geomagnetic hazards, meteor strikes, heatwave and other weather conditions and other natural disasters not elsewhere classified
TECHNOLOGICAL OR HUMAN-INDUCED DISASTERS	Fires – structural (include industrial)
	Hazmat
	Biological
	Chemical
	Radiological
	Incendiary and explosive
	Structural failure
	Other technological or human-induced disasters (e.g. salinity)
RESPONSES TO EVENTS	Transport and rescue events
	Road rescues
	Other rescues (include marine rescues, aerial search and rescue events, aircraft rescues, air-sea rescues, urban search and rescues)
	Complex emergencies (include terrorism)

CROSS-SECTORAL THEMES AND SPECIFIC PRIORITY DATA NEEDS

CROSS-SECTORAL THEMES

The main cross-sectoral themes which have emerged from the EMIDP Data Needs Matrix are:

1. The need for standards, definitions, classifications and frameworks to integrate emergency management statistics across and within jurisdictions. This includes the use of standard counting rules and place names.

2. The need for a consistent system of survey collection methodologies for emergency management.

3. The need for efficient and effective management and governance of existing (and future) data/information through the lifecycle of data editing, storage and dissemination. There is also a strong need for data to be available in a standardised, low level, geospatial format for GIS application and for the general availability and interoperability of data across the services.

4. The need for more data on volunteers.

5. The need for literature searches on human, community and structural behaviours during disasters, as a preliminary to further research.

SPECIFIC PRIORITY DATA NEEDS

1. The need for extensive baseline data on:
   a) the community – including general population characteristics incorporating social capital, community involvement and community networks (including volunteering as above);
   b) the built environment – including the structures and characteristics of residential and other buildings and infrastructure, asset valuations of households and businesses, building points and footprints for capital cities and other areas;
   c) the natural environment – including water data use and supply; and
   d) the economy or business environment – including data for regional economies.

2. The need for data relating to the physical characteristics of specific disasters, which would serve to indicate potential risk mitigation and management, including bush, landscape and household fires and, for Queensland, cyclones.

3. The need for data on the risk assessment methods for emergency service operation, including evaluation and improvement of risk assessment methods for communities and especially the cost-benefit evaluation of the treatment mix.

4. The need for research into human behaviour during natural disasters and other emergency events, commencing with a literature search. This would also include research into the effectiveness of community awareness programs and household safety.

5. The need for research into structural behaviour during natural or other disasters, commencing with a literature search.

6. The need for data on emergency service operational risk reduction, including:
   a) the allocation of suitable resources (human, capital and financial);
   b) the development, testing, review and improvement of operational procedures, protocols and systems;
   c) the evaluation of risk mitigation strategies by jurisdictions;
   d) capability gap analysis; and
   e) the comparative evaluation of costs and the treatment mix. The allocation of efficiency measures for risk assessment, risk reduction, readiness, response and recovery is a major gap.

7. The need for community response information on fight or flight.

SPECIFIC PRIORITY DATA NEEDS *continued*

8. The need for data on the trends of escalation of response for each of the responding agencies or other organisations involved in large-scale, multi-agency disasters or events for the following:

a) understanding need and deployment of appropriate resources, managing the escalation of disaster/event;
b) on-going control planning including improved best practice methods, standard operating procedures and managing the emergency;
c) communication to the public;
d) tracking and analysis of costs/expenditures and resource usage;
e) managing the safety of emergency workers;
f) recording incidents and operational activity; and
g) debriefing and post-incident feedback and evaluations.

9. Strong policy and data needs on impact assessments and the recovery, for the short, medium and long term, following a disaster on:

a) the community;
b) the built environment;
c) the natural environment; and
d) the business or economic environment.

10. The need for information on tsunamis, post 26 December 2004.

11. The need for more information on training, as assessing training needs and skill sets is a significant component of emergency management.

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