D Emergency management sector overview

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| Attachment tables are identified in references throughout this sector overview by a ‘DA’ prefix (for example, table DA.1). A full list of attachment tables is provided at the end of this sector overview, and the attachment tables are available from the Review website at www.pc.gov.au/gsp. |
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## D.1 Introduction

This sector overview provides an introduction and the policy context for the government services reported in ‘Fire and ambulance services’ (chapter 9) by providing an overview of the emergency management sector.

Major improvements in reporting on particular emergency management services this year are identified in Fire and ambulance services (chapter 9).

### Policy context

A national, coordinated and cooperative effort is needed to enhance Australia’s capacity to withstand and recover from emergencies and disasters (COAG 2009). Accordingly, the Council of Australian Governments (COAG) adopted the *National Strategy for Disaster Resilience* on 13 February 2011 (COAG 2011). The strategy promotes a ‘resilience’ based approach to natural disaster policy and programs (COAG 2009). The strategy recognises that disaster resilience is a shared responsibility for individuals, businesses and communities, and involves activities as diverse as risk assessment, legislation, community development, emergency response, urban development and land use management, and community recovery.

The Australia‑New Zealand Emergency Management Committee (ANZEMC), established by agreement between COAG and the New Zealand Government is Australia’s national consultative emergency management forum. The ANZEMC reports to the Standing Council on Police and Emergency Management, other standing councils as required, and has a direct reporting line to COAG for matters requiring whole‑of‑government consideration (AGD 2013b).

The ANZEMC is supported by four sub‑committees:

* Capability Development Sub‑Committee — strategic nation‑wide and whole‑of‑governments’ emergency management capability development
* Recovery Sub‑Committee — holistic disaster recovery policy and planning
* Community Engagement Sub‑Committee — strategic nation‑wide whole‑of‑governments’ emergency management community engagement
* Risk Assessment Measurement and Mitigation Sub‑Committee — national approaches to risk assessment, measurement and mitigation.

### Sector scope

Emergency management is the practice of managing the impact from emergency events (box D.1) to individuals, communities and the environment (AGD 2012). Emergency management in Australia has adopted an approach that aims to be:

* *comprehensive* — encompassing all hazards and recognising that dealing with the risks to community safety requires a range of activities to prevent, prepare for, respond to and recover from any emergency
* *integrated* — ensuring the involvement of governments, all relevant agencies and organisations, private sector and the community.

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| Box D.1 Emergency events |
| An emergency event is an event that endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response (AGD 2012). It encompasses:   * structure fires * rescues — including road crash rescues and marine rescues * medical emergencies and transport * natural disaster events — that is, bushfire (landscape fire), earthquake, flood, storm, cyclone, storm surge, landslide, tsunami, meteorite strike, and tornado * consequences of acts of terrorism * other natural events — such as drought, frost, heatwave, or epidemic * disaster events resulting from poor environmental planning, commercial development, or personal intervention * technological and hazardous material incidents — such as chemical spills, harmful gas leaks, radiological contamination, explosions, and spills of petroleum products * quarantine and control of diseases and biological contaminants. |
| *Source*: AGD (2012). |
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Emergency events vary in size and intensity affecting individuals (such as in medical emergencies), household/business assets (such as in building fires), or community, economy and the environment (such as in natural disasters).

Events of considerable magnitude and duration, such as earthquakes, cyclones and bushfires, can involve international, interstate and other cooperation and support. Jurisdictions are increasingly interacting and contributing to programs and providing operational response across Australia and to a number of significant emergency events around the Pacific and Indian Ocean rim.

#### State and Territory governments

State and Territory governments are responsible for regulatory arrangements with the objective of protecting life, property and the environment. They have primary responsibility for delivering emergency services directly to the community through emergency service organisations.

Emergency service organisations range from government departments to statutory authorities, and to smaller branches, agencies or services within larger departments or authorities (table DA.1). In addition, non‑government organisations, supported by State and Territory government funding and legislation, provide emergency management services, such as St John Ambulance in WA and the NT.

* *Fire service organisations* — work closely with other government departments and agencies (such as State/Territory Emergency Services, police, ambulance services and community service organisations) to minimise the impact of fire and other emergencies on the community (chapter 9).
* *State/Territory Emergency Service organisations* — help communities prepare for, respond to, and recover from unexpected events and play a major role in each State and Territory for hazards as diverse as:
* road crash rescue incidents and extrications (other than in the ACT, where ACT Fire and Rescue is responsible for all road crash rescue services)
* flood, earthquake, tsunami, tropical cyclone and marine search and rescue
* search and rescue services (table DA.11).
* *Ambulance service organisations* — work within the health system providing emergency and non‑emergency patient care and transport, as well as fostering public education in first aid. They are responsible for providing responsive, high quality specialised medical care in emergencies. This includes working with other emergency services organisations to provide pre‑hospital care, rescue, retrieval, and patient transport services (chapter 9).
* *Marine rescue and coast guard organisations* — marine rescue and boating safety and communication services.
* *Lifesaving organisations* — water safety, drowning prevention and rescue services.

#### Australian Government

The primary role of the Australian Government is to support the development, through State and Territory governments, of a national emergency management capability. Australian Government assistance takes the form of:

* financial, physical and technical assistance in large scale emergency events
* financial assistance for natural disaster resilience, mitigation and preparedness
* support for emergency relief and community recovery
* funding for risk management and comprehensive risk assessment programs
* contracting Telstra to provide the national Triple zero (000) emergency call operator service, and regulating the provision of this service
* community awareness activities.

Australian Government agencies also have specific emergency management responsibilities, including: the control of exotic animal and plant diseases; aviation and maritime search and rescue; the management of major marine pollution (beyond coastal waters); the prediction of meteorological and geological hazards; the provision of firefighting services at some airports and some defence installations; human quarantine; and research and development.

The Australian Government also manages the Crisis Coordination Centre, which maintains a 24‑hour a day situational awareness, analysis and reporting capability and an emergency management planning capability.

#### Local governments

Local governments in some states and territories are involved to varying degrees in emergency management. Their roles and responsibilities may include:

* considering community safety in regional and urban planning by assessing risks, and developing emergency event mitigation measures and prevention plans
* improving community preparedness through local emergency planning
* issuing hazard reduction notices to private land holders and clearing vegetation in high risk public areas
* collecting statutory levies to fund fire and other emergency services
* allocating resources for response and recovery activities
* providing financial and operational assistance to voluntary emergency services.

### Profile of the emergency management sector

Detailed profiles for fire events and ambulance events within the emergency management sector are reported in chapter 9, and cover:

* size and scope of the individual service types
* funding and expenditure.

Descriptive statistics for State/Territory Emergency Service organisations are presented, by jurisdiction, in tables DA.11–DA.14.

#### Emergency service organisation costs

Nationally in 2012‑13, total expenditure across ambulance, fire and emergency service organisations was $6.3 billion, or $276.07 per person in the population, although some caution should be taken when interpreting these data (figure  D.1 and table DA.3).

Figure D.1 Expenditure of emergency service organisations, 2012‑13a, b, c

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| Figure D.1 Expenditure of emergency service organisations, 2012-13  More details can be found within the text surrounding this image. |

SES = State/Territory emergency service organisation; FSO = Fire service organisation; ASO = Ambulance service organisation

a Data may not be comparable across service areas and comparisons could be misleading. Expenditure for SES organisations were collected for the first time for the 2013 RoGS. It is anticipated that the comparability of these data will improve over time as a number of scope and data definition issues are resolved between jurisdictions. b The figures provided for WA as FSO expenditure include total costs of services for the SES, Fire and Rescue Services, Bush Fire Services and Volunteer Marine Rescue Services. c Tasmania’s SES expenditure includes activities that support broader whole‑of‑government emergency management functions.

*Source*: State and Territory governments; table DA.3.

Cross‑cutting and interface issues (section D.3) highlights that a range of other government agencies, such as police and health services, also bear costs in relation to emergency management. In addition, governments also incur costs in relation to government disaster coordination agencies and volunteer marine rescue and lifesaving organisations (the costs of which are not available for this Report).

#### Funding emergency service organisations

The funding of emergency services organisations varies by service and jurisdiction (figure D.2). Funding generally occurs through a mix of:

* government grants — provided to emergency services organisations from State and Territory governments
* fire and emergency service levies — governments usually provide the legislative framework for the imposition of levies on property owners or, in some jurisdictions, from levies on both insurance companies and property owners
* ambulance transport fees — from government, hospitals, private citizens and insurance companies
* other revenue — subscriptions, other fees, donations and miscellaneous revenue.

Figure D.2 Emergency service organisations funding sources, 2012‑13a, b

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| Figure D.2 Emergency service organisations funding sources, 2012-13  More details can be found within the text surrounding this image. |

a Data are experimental and may not be comparable across service areas and comparisons could be misleading. Chapter 9 provides further information. b Other revenue is equal to the sum of donations and miscellaneous revenue.

*Source*: State and Territory governments; table DA.2.

#### Australian Government funding

The Australian Government provides emergency management funding to State and Territory governments, communities and individuals through a range of programs.

* The Natural Disaster Resilience Program provides funding to the State and Territory governments to strengthen community resilience to natural disasters consistent with the National Strategy for Disaster Resilience. In 2012‑13, funding was $24.0 million (table DA.5). Data by funding to State and Territory governments are available in table DA.5.
* The National Emergency Management Projects program funds projects of national significance that support the implementation of the National Strategy for Disaster Resilience. In 2012‑13, $3.8 million of funding was provided to 32 disaster resilience projects (Australian Government unpublished).
* The Natural Disaster Relief and Recovery Arrangements provides financial assistance to support State and Territory governments with relief and recovery efforts following an eligible natural disaster event. In 2012‑13, cash payments for natural disaster events were $77.1 million, a substantial decrease in real cash payments from $3.0 billion in 2011‑12, which was predominantly related to the Queensland flood crisis in January 2011 (figure D.3). Data by funding to State and Territory governments are available in table DA.6.
* The Australian Government Disaster Recovery Payment is a one‑off short term recovery payment that provides support to individuals and communities affected by a disaster. The current rates of payment are $1000 for eligible adults and $400 for eligible children. The Australian Government provided approximately $823 million in 2010‑11, approximately $78 million in 2011‑12, and approximately $171 million in payments for events that occurred in 2012‑13 (Australian Government unpublished).

Figure D.3 Australian Government Natural Disaster Relief and Recovery Arrangements payments (2012‑13 dollars)a, b, c

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| Figure D.3 Australian Government Natural Disaster Relief and Recovery Arrangements payments (2012-13 dollars)  More details can be found within the text surrounding this image. |

a Time series financial data are adjusted to 2012‑13 dollars using the General Government Final Consumption Expenditure (GGFCE) chain price deflator (2012‑13 = 100) (table 2A.53). The GGFCE replaces the Gross Domestic Product implicit price deflator used in previous editions. See chapter 2 (section 2.5) for details. b Data presented are the total cash payments in current dollars. c State/Territory expenditure for Natural Disaster Relief and Recovery Arrangements eligible events can be made within 24 months after the end of the financial year in which the relevant disaster occurred unless an extension is granted. Therefore, costs reported for any given financial year may include payments for events that occurred in the previous years.

*Source*: Australian Government (unpublished); table DA.6.

#### Emergency management human resources

Nationally in 2012‑13, 33 949 FTE people were employed by emergency service organisations. Over half, 55.2 per cent, were employed in fire and emergency service organisations, while the remainder were employed by ambulance service organisations (table D.1).

Table D.1 Salaried personnel in ambulance, fire and SES organisations, 2012‑13

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | NSW | Vic | Qld | WAa | SA | Tas | ACT | NT | Aust |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Total ambulance, fire and emergency service organisations** | | | | | | | | | | | **Ambulance service organisations** | | | | | | | | | | | ASOs | 4 342 | 3 667 | 3 878 | 1 275 | 1 274 | 368 | 244 | 172 | 15 220 | | **Fire and emergency service organisations (FSO and SES)** | | | | | | | | | | | FSOs | 4 696 | 6 749 | 3 101 | 1 448 | 1 072 | 452 | 438 | 252 | 18 208 | | SES | 254 | 173 | na | na | 41 | 26 | 8 | 19 | na | | **Total** | **4 950** | **6 922** | **3 101** | **1 448** | **1 113** | **478** | **446** | **271** | **18 729** | | **Total** | **9 292** | **10 589** | **6 979** | **2 723** | **2 387** | **846** | **690** | **443** | **33 949** | | | | | | | | | | |

**ASO** = ambulance service organisation. **FSO** = fire service organisation. **SES** = State and Territory emergency services.

a FESA provides a wide range of emergency services under an integrated management structure. Data cannot be segregated by service. Data for the Department of Environment and Conservation are not included. **na** Not available.

*Source*: State and Territory governments (unpublished); table DA.4.

In 2012‑13, 251 677 fire, ambulance and emergency service volunteers were on the records of emergency service organisations (table DA.4). Emergency services volunteers play a significant role in the provision of emergency services in Australia, particularly in rural and remote areas, by providing:

* response services in the event of an emergency
* community education, cadet schemes and national accredited emergency training
* emergency event support and administrative roles
* community prevention, preparedness and recovery programs.

Although volunteers are not paid wages and salaries, emergency service volunteers provide a valuable service to their communities (box D.2). However, the government and community do bear some costs in receiving this service, including:

* governments — who provide funds and support through infrastructure, training, uniforms, personal protective equipment, operational equipment and support for other operating costs
* employers of volunteers — particularly self‑employed volunteers, who incur costs in supporting volunteer services such as in‑kind contributions, lost wages and productivity, and provision of equipment.

Volunteer activity has implications for the interpretation of financial and non‑financial performance indicators. Notional wages’ costs for volunteers are not reflected in monetary estimates of inputs or outputs, which means that data for some performance indicators may be misleading where the input of volunteers is not counted but affects outputs and outcomes.

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| Box D.2 Value of volunteers to State/Territory Emergency Services |
| The Australian Council of State Emergency Services funded a study to estimate the value of State/Territory Emergency Services volunteer time based on data provided by the agencies in NSW, Victoria, SA and Tasmania. Two approaches were used to estimate the economic value of State/Territory Emergency Services volunteer time:   * *global substitution method* — an average wage rate is used to value all activities * *task specific substitution method* — each task is valued at its market wage rate.   In both approaches, operational tasks and time, including emergency response and community activities, were valued, as well as time spent on training, travel, administration and other tasks.  The value of volunteer time for community preparedness services, operational response, training and unit management (without stand‑by time) from 1994‑95 to 2004‑05 averaged around $52 million (NSW), $19 million (Victoria) and $12 million (SA) a year.  Stand‑by time accounts for about 94 per cent of the total time in NSW and Victoria and about half the total value for NSW and 39 per cent for Victoria. The total time volunteers made available including stand‑by time is estimated to be more than $86 million and $41 million a year to NSW and Victoria respectively. For NSW the annual value of a volunteer’s contribution was estimated as $15 903. While the indirect or secondary social capital benefits that may arise through volunteerism were not valued, the study shows that volunteers provide a valuable, tangible benefit to their communities. |
| *Source*: Ganewatta and Handmer (2007). |
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### Social and economic factors affecting demand for services

The size, severity, timing, location and impacts of emergencies are difficult to predict. However, many known factors increase vulnerability to emergency events (COAG 2011). Work‑life patterns, lifestyle expectations, demographic changes, domestic migration, and community fragmentation are increasing community susceptibility and demand for emergency management services. In addition, scientific modelling suggests that climate change will likely result in an increased frequency and severity of extreme weather events (COAG 2009).

Factors that can influence disaster resilience include remoteness, access to services, population density and mobility, socio‑economic status, age profile, and percentage of population for whom English is a second language. Within individual communities, certain members are more vulnerable and may need tailored advice and support.

* Research shows socially‑disadvantaged communities are more heavily impacted by emergency events. For example, the fire death and injury rates of Australia’s most disadvantaged areas (as defined by the 2001 Socio‑Economic Indexes for Areas) are 3.6 (Australia) and 2.6 (SA) times that of the least disadvantaged areas respectively (Dawson and Morris 2008). Similarly, in WA it has been found that culturally and linguistically diverse communities are more vulnerable to fire events (FESA 2010).
* Population growth has been experienced across Australian regional centres, coastal areas, rural areas around major cities, alpine areas and along inland river systems. Such areas are more susceptible to emergency events and require greater resources when an emergency event occurs (Victorian Bushfires Commission 2010).
* Population change is expected to lead to an increased proportion of older Australians living in the community (Australian Government 2010). As more people fall into the older age groups their need to call for assistance in an emergency generally increases — be it individual medical emergencies requiring an ambulance, or assistance in preparing for and/or responding to a community wide emergency (such as for a natural disaster).

### Service‑sector objectives

The broad aim of emergency management is to reduce the level of risk to the community from emergencies. The framework of performance indicators in this sector overview is based on objectives for emergency management established in the *National Strategy for Disaster Resilience* and that are common to all Australian emergency services organisations (box D.3).

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| Box D.3 Objectives for emergency management |
| Emergency management services aim to build disaster resilient communities that work together to understand and manage the risks that they confront. Emergency management services provide highly effective, efficient and accessible services that:   * reduce the adverse effects of emergencies and disasters on the community (including people, property, infrastructure, economy and environment) * contribute to the management of risks to the community * enhance public safety. |
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#### Disaster resilient communities

The Council of Australian Governments (COAG) adopted the *National Strategy for Disaster Resilience* on 13 February 2011 (COAG 2011). Under the agreement Australian governments adopted an emergency management strategy that promotes a ‘resilience’ based approach to natural disaster policy and programs (COAG 2011).

The goal of a disaster resilient community is one that is better able to withstand an emergency event and have an ability to recover from residual impacts whether individuals or communities are hit by medical emergencies, extreme weather events, bushfires, transport accidents, industrial emergencies, or other threats to health and safety (COAG 2009).

#### Prevention/mitigation, preparedness, response and recovery

To meet the objectives of emergency management, emergency service organisations classify their key functions in managing emergency events to the prevention/mitigation, preparedness, response and recovery framework. The framework uses the following widely accepted ‘comprehensive approach’.

* *Prevention/mitigation* — The results of measures taken in advance of an emergency aimed at decreasing or eliminating its impact on the community and the environment. Activities that contribute to prevention and mitigation include: advice on land management practice and planning; the inspection of property and buildings for hazards, compliance with standards and building codes, and levels of safe practices; the preparation of risk assessment and emergency management plans; risk categorisation for public information campaigns; and public information campaigns and educational programs to promote safe practices in the community.
* *Preparedness* — The results of measures to ensure, if an emergency occurs, that communities, resources and services are capable of responding to, and coping with, the effects. Activities that contribute to preparedness include: public education and training; emergency detection and response planning (including the installation of smoke alarms and/or sprinklers); hazardous chemicals and material certification, and the inspection of storage and handling arrangements; the exercising, training and testing of emergency service personnel; and standby and resource deployment and maintenance. Preparedness also involves establishing equipment standards and monitoring adherence to those standards.
* *Response* — The results of strategies and services to control, limit or modify the emergency to reduce its consequences. Activities that contribute to response include: the implementation of emergency plans and procedures; the issuing of emergency warnings; the mobilisation of resources in response to emergency incidents; the suppression of hazards (for example, fire containment); the provision of immediate medical assistance and relief; and search and rescue.
* *Recovery (community)* — The results of strategies and services to support affected individuals and communities in their reconstruction of physical infrastructure and their restoration of emotional, social, economic and physical wellbeing within their changed environment. Activities that contribute to community recovery include: the restoration of essential services; counselling programs; temporary housing; long term medical care; restoration of community confidence and economic viability; and public health and safety information.
* *Recovery (emergency services organisations)* — The results of strategies and services to return agencies to a state of preparedness after emergency situations. Activities that contribute to emergency services recovery include: critical incident stress debriefing; and the return of emergency services organisations resources to the state of readiness specified in response plans.

## D.2 Sector performance indicator framework

This sector overview is based on a sector performance indicator framework (figure D.4). This framework is made up of the following elements:

* Sector objectives — five sector objectives are a précis of the key objectives of emergency management (box D.3).
* Sector‑wide indicators — two sector‑wide indicators relate to the overarching service sector objectives identified in the *National Disaster Resilience Statement* (COAG 2009) and the *National Strategy for Disaster Resilience* (COAG 2011).
* Information from the service‑specific performance indicator frameworks that relate to emergency services. Discussed in more detail in chapter 9, the service‑specific frameworks provide comprehensive information on the equity, effectiveness and efficiency of these services.

This sector overview provides an overview of relevant performance information. Chapter 9 and its associated attachment tables provide more detailed information.

Data quality information (DQI) is being progressively introduced for all indicators in the Report. The purpose of DQI is to provide structured and consistent information about quality aspects of data used to report on performance indicators. DQI in this Report cover the seven dimensions in the ABS’ data quality framework (institutional environment, relevance, timeliness, accuracy, coherence, accessibility and interpretability) in addition to dimensions that define and describe performance indicators in a consistent manner, and note key data gaps and issues identified by the Steering Committee. All DQI for the 2014 Report can be found at www.pc.gov.au/gsp/reports/rogs/2014.

Figure D.4 Emergency management sector performance indicator framework

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| Figure D.4 Emergency management sector performance indicator framework  More details can be found within the text surrounding this image. |

### Sector‑wide indicators

This section includes high level indicators of emergency management outcomes. Many factors are likely to influence these outcomes — not just the performance of government services. However, these outcomes inform the development of appropriate policies and the delivery of government services.

##### Total asset loss from emergency events

‘Total asset loss from emergency events’ is an indicator of the objectives of governments to reduce the adverse effects of emergencies and disasters on the community (including people, property, infrastructure, economy and environment) and to contribute to the management of risks to the community (box D.4).

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| Box D.4 Total asset loss from emergency events |
| ‘Total asset loss from emergency events’ data are derived from the submissions of general insurance companies following large events incurring cost to the community and insurers. It does not represent the entire cost of the event. Costs not currently taken into account include the expenses of:   * emergency response by emergency services * local, State, Territory and the Australian governments — uninsurable assets such as roads, bridges, recreational facilities and the like are not considered. This is of greatest significance in rural and remote areas * non‑government organisations * local government clean‑up * remedial and environmental damage costs (including pollution of foreshores and riverbanks and beach erosion) * community dislocation; loss of jobs; rehabilitation/recovery services * basic medical and funeral costs associated with injuries and deaths.   Events are only recorded where there is a potential for the insured loss to exceed $10 million. Additionally, many large single losses occur on a day to day basis in Australia that are not part of a larger emergency event.  The prevention/mitigation, preparedness, and response activities of government contribute to reduce the value of total asset loss from emergency events. A low or decreasing value of total asset loss from emergency events is desirable. |
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| Box D.4 Continued |
| Data for these measures are:   * comparable (subject to caveats) across jurisdictions and over time * complete (subject to caveats) for the current reporting period. All required 2012‑13 data are available for all jurisdictions.   Data quality information for this indicator is under development. |
| *Source*: ICA (2013); AGD (2013a). |
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Nationally, the insured asset loss from emergency events was $1.2 billion in 2012‑13. Other than in 2008‑09 — the year of the Victorian bushfires (chapter 9) — insured asset losses are mostly related to flood and storm damage (figure D.5).

Figure D.5 Total asset loss from emergency events, national (2012‑13 dollars)**a, b**

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| Figure D.5 Total asset loss from emergency events, national (2012-13 dollars)  More details can be found within the text surrounding this image. |

a Time series financial data are adjusted to 2012‑13 dollars using the General Government Final Consumption Expenditure (GGFCE) chain price deflator (2012‑13 = 100) (table 2A.51). The GGFCE replaces the Gross Domestic Product implicit price deflator used in previous editions. See chapter 2 (section 2.5) for details. b Total Asset Loss: all insurance losses (claims by policy holders, based on figures from the Insurance Council of Australia). The data are derived from the submissions of general insurance companies following large events incurring cost to the community and insurers. Events are only recorded where there is a potential for the insured loss to exceed $10 million. c While data are available for all jurisdictions, in 2012‑13, data are nil or rounded to zero for Victoria, WA, the ACT, and the NT for all events therefore, data are presented as national totals only.

*Source*: ICA (2013), AGD (2013a); table DA.7.

Annual insured asset losses need to be interpreted with caution as they can be particularly volatile over time because of the influence of large irregular emergency events such as bushfires (chapter 9) and extreme weather events (box D.5).

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| Box D.5 Extreme weather events |
| In Australia, extreme weather events can bring prolonged and high temperatures (heat waves), high winds and coastal storm surges (such as cyclones in Australia’s tropical zones), torrential rain, frosts and hail storms. In Australia’s variable climate the Commonwealth Scientific and Industrial Research Organisation (CSIRO) notes that extreme weather events are a part of Australia’s climate. The CSIRO predicts that weather events are likely to be more intense resulting in more severe flooding as a result of climate change (CSIRO 2012).  Natural disasters can have a substantial social and economic cost. Recent examples of extreme weather events leading to insured damages greater than $1 billion include:   * *Cyclone Oswald* — Tropical Cyclone Oswald formed in the Gulf of Carpentaria on 21 January 2013. The cyclone brought with it a heavy monsoonal rainfall system that lasted for approximately one week. Over the course of the week, six people were killed, thousands were forced to evacuate, and 2000 people were isolated by floodwaters for some days requiring emergency supply drops. Approximately 40 water rescues took place by State Emergency Service volunteers. The Insurance Council of Australia estimated the January 2013 cost at $119 million for New South Wales and $971 million for Queensland. * *Queensland floods* — Prolonged and extensive rainfall over large areas of Queensland, led to flooding of historic proportions in Queensland in December 2010, stretching into January 2011. Thirty‑three people died in the 2010‑11 floods; three remain missing. Some 29 000 homes and businesses suffered some form of inundation. The Queensland Reconstruction Authority has estimated that the cost of flooding events will be in excess of $5 billion. (The Insurance Council of Australia reports insured asset losses of $2.4 billion.) * *WA severe thunderstorms* — Severe thunderstorms occurred on 22 March 2010 in the south‑west regions of WA. Heavy rain, severe winds, and hail, large enough to badly damage cars, break car windscreens and windows of houses, caused considerable damage. The Insurance Council of Australia estimated the 2010 damage at $1.1 billion.   Measurement differences in the number of 2011 Queensland flood deaths  In total, the *Queensland Floods Commission of Inquiry* (2012) attributed 33 deaths to the 2010‑11 Queensland floods. The ABS’ (2012) causes of deathdatarecorded fewer Queensland victims of floods in the same period. ABS’ statistics have been coded according to the ‘International Classification of Diseases’ standard. This results in some deaths, which may have occurred during the floods, being attributed to a different ‘primary’ cause of death. There may also be some deaths which occurred in Queensland, but have been attributed to the state of usual residence of the individual. In addition, the ABS’ causes of death data are subject to a revisions process. Further deaths may be attributed to flooding on the finalisation of all related coronial inquests. |
| *Source*: CSIRO (2012); AGD (2013a); Queensland Government (unpublished). |
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##### Deaths from emergency events

‘Deaths from emergency events’ is an indicator of governments’ objective to reduce the adverse effects of emergencies and disasters on the community (including people, property, infrastructure, economy and environment) and to enhance public safety (box D.6).

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| Box D.6 Deaths from emergency events |
| ‘Deaths from emergency events’ is defined as the number of deaths per calendar year in three categories:   * road traffic deaths — deaths primarily caused by accidents involving road transport vehicles (mainly cars) * fire deaths — deaths primarily caused by exposure to smoke, fire or flames * deaths from exposure to forces of nature — including exposure to excessive natural heat, exposure to excessive natural cold, exposure to sunlight, victim of lightning, victim of earthquake, victim of volcanic eruption, victim of avalanche, landslide and other earth movements, victim of cataclysmic storm, and victim of flood.   A low or decreasing number of deaths from emergency events is desirable.  Data for these measures are:   * comparable (subject to caveats) across jurisdictions and over time * complete (subject to caveats) for the current reporting period. All required 2012‑13 data are available for all jurisdictions.   Data quality information for this indicator is under development. |
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Nationally, there were 1454 deaths, 65.1 per million people, from emergency events in 2011 (table DA.10). Across jurisdictions, emergency event deaths ranged from 48.8 deaths per million people in NSW to 246.4 deaths per million people in the NT.

##### Road traffic deaths

Road crash incidents are the single largest contributor to deaths from emergency events reported (by a substantial factor). Nationally, there were 1257 road traffic deaths in 2011 (table DA.8).

A primary aim of governments is to reduce death and injury and the personal suffering and economic costs of road crashes (box D.7). Nationally, over 20 emergency service organisations contribute to this through the provision of effective and efficient medical and road crash rescue services (table DA.1).

From 1982 to 2011, road traffic deaths have declined from 222.3 to 56.3 deaths per million people (figure D.6). Road safety gains have been achieved through a range of community and government efforts including: road infrastructure improvements; safer vehicles; lower speed limits; graduated licensing; and behavioural programs targeting drink driving, seatbelt usage and speeding (ATC 2011).

Figure D.6 Road traffic deaths**a, b**

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| Figure D.6 Road traffic deaths  More details can be found within the text surrounding this image. |

a Deaths are coded according to the ICD and Related Health Problems Revision 10 (ICD‑10). Deaths data are reported by the year the death was registered. Road traffic deaths includes ICD codes V01‑V99, X82, Y03 and Y32. b The number of road traffic deaths provided in *Causes of Death* is different to the number of ‘Road fatalities’ presented in chapter 6. ‘Road fatalities’ in chapter 9 provides more recent data sourced by the Australian Road Deaths Database as reported by the police each month to road safety authorities.

*Source*: ABS (2013) *Causes of Death, Australia*, Cat. no. 3303.0; table DA.8.

This sector overview provides data on the number of road traffic deaths only. However, the impact of over 40 000 traffic injuries and traumas in 2012‑13 is both ongoing and costly (box D.7 and chapter 6). The role of police services in maximising road safety is provided in Police services (chapter 6). The number of road crash rescue incidents attended to by emergency service organisations is presented in Fire and ambulance services (chapter 9).

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| Box D.7 Road safety in Australia |
| The cost of road crashes  An evaluation report from the Bureau of Infrastructure, Transport and Regional Economics estimated the cost of road crashes in 2006 at $17.9 billion (1.7 per cent of GDP). This was a real decrease of 7.5 per cent compared to 1996 (2006 dollars). Estimated human losses were approximately $2.4 million per fatality, losses for a hospitalised injury were approximately $214 000 per injury (including disability‑related costs), and losses for non‑hospitalised injury were approximately $2200 per injury. |
| The research found that the estimated real cost of road crashes has declined in the ten years from 1996 to 2006. Road crash fatalities peaked in 1970 and many factors have contributed to reductions in the number of fatalities since then. These include investments in road infrastructure and road safety programs, regulated changes in vehicle safety standards (for example, mandatory seat belts), and better vehicle design and safety equipment such as airbags.  National Road Safety Strategy 2011–2020  On 20 May 2011, the Standing Council on Transport and Infrastructure released an updated *National Road Safety Strategy 2011–20*. This strategy aims to elevate Australia’s road safety ambitions through the coming decade and beyond. It is based on Safe System principles and is framed by the guiding vision that no person should be killed or seriously injured on Australia’s roads.  The framework includes 10‑year targets for governments to reduce the annual number of road crash fatalities and reduce the annual number of serious road crash injuries by at least 30 per cent each.  Achieving this aim requires a range of activities, including design and maintenance of vehicles and roads, driver training, road user education, enforcement of road rules, emergency response and health care in the event of an incident. |
| *Source*: BITRE (2009); ATC (2011). |
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##### Deaths from exposure to forces of nature

Relatively few deaths (68 deaths in 2011 nationally) are primarily caused by exposure to forces of nature (table DA.9 and figure D.7). Of these deaths:

* 26 people were victims of floods — extreme weather events (and in particular the Queensland floods of 2010‑11) help explain the increase in the victims of flood in 2011 compared with previous years (box D.5)
* 26 people died from exposure to excessive natural cold
* 11 people died from exposure to excessive natural heat (ABS 2013).

Research indicates that extremely cold weather conditions and intense and long heatwaves can exceed the capacity of some sections of the community to cope. For example, in 2008 and 2009 heatwaves led to total SA Ambulance Service daily call‑outs to increase by 10 per cent and 16 per cent, respectively, when compared to previous heatwaves (Nitschke et al. 2011).

Figure D.7 Deaths from exposure to forces of nature**a, b**

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| Figure D.7 Deaths from exposure to forces of nature  More details can be found within the text surrounding this image. |

a Deaths are coded according to the ICD and Related Health Problems Revision 10 (ICD‑10). Deaths data are reported by the year the death was registered. Exposure to forces of nature includes ICD codes X30‑X39. b The small number of fire and exposure to forces of nature deaths means it is difficult to establish patterns and provide detailed analysis.

*Source*: ABS (2013) *Causes of Death, Australia*, Cat. no. 3303.0; table DA.9.

##### Fire deaths

The number of fire deaths can vary from year to year, often impacted by large bushfires. In 2011 there were 129 fire deaths nationally (details in chapter 9).

### Service‑specific performance indicator frameworks

This section summarises information from the ‘fire events’ and ‘ambulance events’ service‑specific indicator frameworks in chapter 9. At present it is not possible to report on government services for ‘all‑hazards’ (box D.8).

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| Box D.8 Reporting on all‑hazards |
| While the sector covers a broader array of events, the potential to expand the chapter to cover all hazards is limited. Many hazards are sporadic in nature (for example floods, cyclones and acts of terrorism) and do not lend themselves to annual, comparative reporting. Resource constraints and data availability also restrict reporting.  Jurisdictions have held inquiries to review and compare government performance following significant emergency events. Recent reports include inquiries from Tasmania, WA and Victoria into bushfires and Queensland into floods (Tasmanian Bushfires Inquiry 2013, Victorian Bushfires Royal Commission 2009, Perth Hills Bushfire February 2011 Review (Keelty 2011), Queensland Floods Commission of Inquiry 2011). Knowledge management (databases, research and evaluation) has been recognised as a key theme identified in these reports |
| *Source*: Monash Injury Research Institute (2012). |
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Additional information is available to assist the interpretation of these results:

* indicator interpretation boxes, which define the measures used and indicate any significant conceptual or methodological issues with the reported information (chapter 9)
* caveats and footnotes to the reported data (chapter 9 and attachment 9A)
* additional measures and further disaggregation of reported measures (for example, by remoteness) (chapter 9 and attachment 9A)
* data quality information for many indicators, based on the ABS Data Quality Framework (chapter 9 data quality information).

A full list of attachment tables and available data quality information is provided at the end of chapter 9.

#### Fire events

The performance indicator framework for fire events is presented in figure D.8. This framework provides comprehensive information on the equity, effectiveness, efficiency and the outcomes of fire events.

Figure D.8 Fire events performance indicator framework

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| Figure D.8 Fire events performance indicator framework  More details can be found within the text surrounding this image. |

An overview of the fire events indicator results for 2012‑13 (or latest period available) is presented in table D.2. Information to assist the interpretation of these data can be found in the indicator interpretation boxes in chapter 9 and the footnotes in attachment 9A.

Table D.2 Performance indicators for fire events**a, b**

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a Caveats for these data are available in chapter 9 and attachment 9A. Refer to the indicator interpretation boxes in chapter 9 for information to assist with the interpretation of data presented in this table. b Some data are derived from detailed data in chapter 9 and attachment 9A. **na** Not available.

*Source*: Chapter 9 and attachment 9A.

#### Ambulance events

The performance indicator framework for ambulance events is presented in figure D.9. This framework provides comprehensive information on the equity, effectiveness, efficiency and the outcomes of ambulance events.

Figure D.9 Ambulance events performance indicator framework

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| Figure D.9 Ambulance events performance indicator framework  More details can be found within the text surrounding this image. |

An overview of the ambulance events indicator results for 2012‑13 (or latest period available) is presented in table D.3. Information to assist the interpretation of these data can be found in the indicator interpretation boxes in chapter 9 and the footnotes in attachment 9A.

Table D.3 Performance indicators for ambulance events**a, b**

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| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | *NSW* | *Vic* | *Qld* | *WA* | *SA* | *Tas* | *ACT* | *NT* | *Aust* | *Source* | | **Equity — Access indicators** | | | | | | | | | | | | *Response locations, 2012‑13 — Paid, mixed and volunteer locations per 100 000 people* | | | | | | | | | | | | Most recent data for this measure are comparable and complete (chapter 9) | | | | | | | | | | | | no. | 3.6 | 4.5 | 5.8 | 7.6 | 6.8 | 9.6 | 1.8 | 3.8 | 5.1 | 9A.38 | | *Availability of ambulance officers/paramedics, 2012‑13 — Number of full time equivalent  ambulance officers/paramedics per 100 000 people* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | no. | 42.4 | 49.3 | 59.4 | 28.3 | 46.7 | 46.3 | 41.3 | 43.1 | 46.4 | 9A.36 | | *Capital city centre response times, 90th percentile, 2012-13* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | min. | 20.6 | 19.5 | 14.9 | 14.2 | 15.4 | 16.1 | 13.7 | 14.6 | na | 9A.44 | |  |  |  |  |  |  |  |  |  |  |  | | **Effectiveness — Access indicators** | | | | | | | | | | | | *State-wide response times, 90th percentile, 2012-13* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | min. | 23.0 | 22.9 | 16.5 | 16.5 | 17.4 | 22.8 | 13.7 | 21.6 | na | 9A.44 | | *Triple zero call answering time, 2012‑13 — Proportion of calls from the emergency call service answered by ambulance service communication centre staff in a time equal to or less than 10 seconds* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | % | 90.9 | 91.4 | 90.6 | 94.4 | 91.3 | 94.2 | 88.7 | 10.4 | 89.9 | 9A.45 | |  |  |  |  |  |  |  |  |  |  |  | | **Effectiveness — Sustainability indicators** | | | | | | | | | | | | *Workforce by age group — Operational workforce under 50 years of age, 2012-13* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | % | 78.3 | 76.4 | 80.2 | 86.4 | 78.1 | 78.2 | 84.7 | 88.4 | 79.1 | 9A.37 | | *Staff attrition, 2012-13* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | % | 5.5 | 4.3 | 3.8 | 4.8 | 1.4 | 2.3 | 2.6 | 5.0 | 4.3 | 9A.37 | |  |  |  |  |  |  |  |  |  |  |  | | **Efficiency indicators** | | | | | | | | | | | | *Ambulance service expenditure per person, 2012-13* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | $ | 103.21 | 110.33 | 123.22 | 81.06 | 126.19 | 118.84 | 118.70 | 109.47 | 108.94 | 9A.47 | |  |  |  |  |  |  |  |  |  |  |  | |
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Table D.3 Continued

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| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | *NSW* | *Vic* | *Qld* | *WA* | *SA* | *Tas* | *ACT* | *NT* | *Aust* | *Source* | | **Outcome indicators** | | | | | | | | | | | | *Cardiac arrest survived event, 2012‑13 — Adult cardiac arrest survived event rate  — where resuscitation attempted (excluding paramedic witnessed)* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | % | na | 30.1 | 24.5 | 27.0 | 24.4 | 30.7 | 21.7 | 28.3 | na | 9A.41 | | *Pain management, 2012-13* | | | | | | | | | | | | Most recent data for this measure are complete but are not comparable (chapter 9) | | | | | | | | | | | | % | 72.9 | 91.3 | 89.2 | 80.4 | na | 84.3 | na | na | 84.2 | 9A.42 | | *Level of patient satisfaction — overall satisfaction* *rate, 2013* | | | | | | | | | | | | Most recent data for this measure are comparable and complete (chapter 9) | | | | | | | | | | | | % | 99 | 98 | 96 | 99 | 99 | 98 | 98 | 95 | 98 | 9A.43 | | ± 1.0 | ± 1.3 | ± 2.0 | ± 1.2 | ± 1.0 | ± 1.0 | ± 1.2 | ± 2.9 | ± 0.5 | |

a Caveats for these data are available in chapter 9 and attachment 9A. Refer to the indicator interpretation boxes in chapter 9 for information to assist with the interpretation of data presented in this table. b Some data are derived from detailed data in chapter 9 and attachment 9A. **na** Not available.

*Source*: Chapter 9 and attachment 9A.

## D.3 Cross‑cutting and interface issues

The effective development of a ‘resilient community’ — one that works together to understand and manage the risks that it confronts (COAG 2011) — requires the support and input of a range of community stakeholders, including from other government services:

* *Police services* have a critical role in effective emergency management within each jurisdiction. They generally assume critical roles in a jurisdiction’s disaster management plans and coordination authorities (Victorian Bushfires Commission 2010; Queensland Floods Commission of Inquiry 2011). For example, the Queensland Police Service is responsible for coordinating the response phase of disaster management.

Police services (and the justice system) have a critical role in implementing the prevention strategies of a jurisdiction — such as enforcing road laws.

* *Health services*, in particular emergency departments of public hospitals, have an important role in the preparation and response to emergency events.

Similarly, ambulance services are an integral part of a jurisdiction’s health service providing emergency as well as non‑emergency patient care and transport.

* In large scale emergencies, a range of agencies may be called upon to provide assistance. For example, through Australian Government arrangements for the provision of assistance to States/Territories, the Australian Defence Force has been called upon to assist emergency services organisations in responding to emergencies such as the 2011 Queensland floods (Queensland Floods Commission of Inquiry 2011).

Emergency services, police and public hospitals are also key services involved in preventing and dealing with acts of terrorism as set out in Australia’s National Counter Terrorism Plan (NCTC 2012). While performance data in RoGS do not explicitly include the details of these government activities, such activities need to be kept in mind when interpreting performance results.

Emergency management policies need to consider how government services cut across populations and communities with special needs. The Standing Council on Police and Emergency Management’s terms of reference emphasise that cross‑cutting issues such as Indigenous disadvantage, access to services, gender equality, and inclusion for people with disability, as well as the specific needs of regional Australia should to be taken into account in pursuing its priority issues of national significance (COAG 2012).

The development of the National Emergency Management Strategy for Remote Indigenous Communities was initiated by the Australian Emergency Management Committee in 2004 (RICAC 2007). The finalised strategy has been endorsed by the Augmented Australasian Police Ministers’ Council (now the Standing Council on Police and Emergency Management). The strategy aims to improve the disaster resilience of remote Indigenous communities.

## D.4 Future directions in performance reporting

This emergency management sector overview will continue to be developed in future reports. It is anticipated that work undertaken to achieve the COAG aspirations will lead to improvements in performance reporting for the emergency management sector. There are several important national initiatives currently underway. These include:

* development of risk registers that assess the likelihood and potential impacts of particular emergency events
* development of the disasters database to provide more information on the costs of disasters beyond insured asset losses
* development of an expanded action plan to enhance disaster resilience in the built environment, including consideration of land use planning, building codes and property resilience ratings.

The Fire and ambulance services chapter contains a service‑specific section on future directions in performance reporting.

## D.5 List of attachment tables

Attachment tables are identified in references throughout this sector overview by a ‘DA’ prefix (for example, table DA.1). A full list of attachment tables is provided at the end of this sector overview, and the attachment tables are available from the Review website at www.pc.gov.au/gsp.

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| **Emergency management** | |
| **Table DA.1** | Summary of emergency management organisations by event type |
| **Table DA.2** | Major sources of emergency service organisations’ revenue, 2012‑13 |
| **Table DA.3** | Emergency service organisations’ costs, 2012‑13 |
| **Table DA.4** | Emergency services human resources, 2012‑13 |
| **Table DA.5** | Australian Government Natural Disaster Resilience Program (2012‑13 dollars) |
| **Table DA.6** | Australian Government Natural Disaster Relief and Recovery Arrangements payments (2012‑13 dollars) |
| **Table DA.7** | Asset loss from emergency events (2012‑13 dollars) |
| **Table DA.8** | Road traffic death rate |
| **Table DA.9** | Exposure to forces of nature death rate |
| **Table DA.10** | Total emergency event death rate |
| **State/Territory Emergency Services** | |
| **Table DA.11** | All activities of State Emergency Services and Territory Emergency Services |
| **Table DA.12** | Major sources of State/Territory emergency service organisations revenue (2012‑13 dollars) |
| **Table DA.13** | State/Territory emergency service organisations’ costs (2012‑13 dollars) |
| **Table DA.14** | State/Territory emergency service organisations human resources |

## D.6 References

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