# D Emergency management sector overview

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| 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 website at www.pc.gov.au/rogs/2016. |
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## D.1 Introduction

This sector overview provides an introduction to and the policy context for government services reported in ‘Fire and ambulance services’ (chapter 9). It provides an overview of the emergency management sector, presenting both contextual information and high level performance information.

All abbreviations used in this Report are available in a complete list in Volume A: Approach to performance reporting.

### Policy context

The *Natural Disaster Resilience Statement* (COAG 2009) highlights that a national, coordinated and cooperative effort is needed to enhance Australia’s capacity to withstand and recover from emergencies and disasters. In 2011, the Council of Australian Governments (COAG) adopted the *National Strategy for Disaster Resilience* (COAG 2011) which promotes a ‘resilience’ based approach to natural disaster policy and programs. 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. In 2014, the Law, Crime and Community Safety Council (LCCSC) tasked the Australia-New Zealand Emergency Management Committee (ANZEMC) to review the implementation of the strategy including to conduct a critical evaluation of progress and to identify future priority areas of focus (COAG 2015).

ANZEMC is Australia's national consultative emergency management forum and reports to the LCCSC (LCCSC 2014). ANZEMC works to strengthen disaster resilience by providing strategic leadership on emergency management policy and supporting related capability and capacity development activities.

### Sector scope

Emergency management is the practice of managing the impact from emergency events (box D.1) to individuals, communities and the environment (EMA 1998).

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| Box D.1 Emergency events |
| An emergency event is an event that endangers or threatens to endanger life, property and/or the environment, and which requires a significant and coordinated response (EMA 1998). It encompasses:   * structure fires * rescues — including road crash rescues and marine rescues * medical emergencies and transport * natural disaster events — 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*: AEM (2015a). |
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Emergency management organisations in Australia have 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.

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 or duration, such as earthquakes, cyclones and bushfires, can involve international, interstate and other cooperation and support. Jurisdictions are increasingly contributing to operational responses 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 that protect life, property and the environment. They have primary responsibility for delivering emergency services directly to the community through emergency service organisations.

Emergency service organisations include government departments, statutory authorities, and smaller branches, agencies or services within larger departments or authorities (table DA.1). They also include non‑government organisations, supported by State and Territory government funding and legislation, which provide emergency management services on behalf of the state, such as St John Ambulance in WA and the NT.

The range of emergency service organisations encompasses:

* *Fire service organisations* — work to minimise the impact of fire and other emergencies on the community, in cooperation with other government departments and agencies (SES, police, ambulance services and community service organisations) (chapter 9)
* *Ambulance service organisations* — work within the health system providing emergency and non‑emergency patient care and transport. Ambulance services provide a critical link between health care and disaster management systems (CAA 2013). 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 medical transport to tertiary health care facilities by road, air and water
* *State and Territory Emergency Service organisations (SES)* — 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.14)
* *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
* support 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
* support for 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.

The Australian Government is also responsible for reporting against Australia’s progress in implementing the United Nations’ Sendai Framework for Disaster Risk Reduction   
2015-2030 (UNISDR 2015).

State and Territory governments may seek non‑financial assistance for response and recovery activities. This assistance is usually provided under the Defence Assistance to the Civil Community (DACC) program. Under the DACC, the Department of Defence may be called upon to provide personnel, equipment and expertise to assist in the civil response to an emergency event. DACC recorded 275 emergency tasks from 2005-06 to 2012‑13 (ANAO 2014).

#### 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, including size and scope of the individual service types and associated expenditure. Descriptive statistics for SES organisations are presented, by jurisdiction, in tables DA.14–DA.19.

#### Emergency service organisation costs

Nationally in 2014-15, total expenditure across ambulance, fire and emergency service organisations was $6.7 billion, or $283.82 per person in the population, although some caution should be taken when comparing these data across service areas and jurisdictions (figure D.1 and table DA.3).

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| Figure D.1 Expenditure of emergency service organisations, per person in the population 2014-15a |
| |  | | --- | | Figure D.1 Expenditure of emergency service organisations, per person in the population 2014-15  More details can be found within the text surrounding this image. | |
| ASO = Ambulance service organisation; FSO = Fire service organisation; SES = State/Territory emergency service organisation. a See table DA.3 for detailed footnotes and caveats. |
| *Source*: State and Territory governments; table DA.3. |
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The cross‑cutting and interface issues section of this overview (section D.3) highlights that a range of other government agencies, such as police and health services, also fund emergency management. In addition, governments also incur costs for government disaster coordination agencies and volunteer marine rescue and lifesaving organisations (these costs 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 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 user/transport charges — from government, hospitals, private citizens and insurance companies
* subscriptions and other revenue — subscriptions, other fees, donations and miscellaneous revenue.

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| Figure D.2 Emergency service organisations funding sources,  2014-15a, b |
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| a See table DA.2 for detailed footnotes and caveats. b Total levies in the ACT and the NT are nil. |
| *Source*: State and Territory governments; table DA.2. |
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#### Australian Government funding

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

The *Natural Disaster Relief and Recovery Arrangements* provide financial assistance to support State and Territory governments with relief and recovery efforts following an eligible natural disaster event. The Australian Government calculated that it contributed $521.8 million to the States and Territories for natural disaster events in 2014-15. Allocations to State and Territory governments vary across jurisdictions and over time depending on the timing and nature of natural disaster events (figure D.3 and table DA.6).

Under the *National Bushfire Mitigation Programme*, the Australian Government is providing $15 million from 2015-16 to 2017-18 in support of state and territory efforts to reduce long term bushfire risks. The programme is aimed at strengthening community resilience, as well as building the ability to prevent bushfires. Examples of state-based bushfire mitigation work supported under the programme include improved bushfire risk mapping, extending fire trails and better coordinated prescribed burns with private landholders. The programme also includes $2.2 million in support for the National Burning Project and a $1.5 million mechanical fuel load reduction trial.

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| Figure D.3 Natural Disaster Relief and Recovery Arrangements expenses (2014-15 dollars)a |
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| a See table DA.6 for detailed footnotes and caveats. |
| *Source*: Australian Government (unpublished); table DA.6, table DA.20. |
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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 2014-15, funding was $25.7 million (table DA.5). Allocations to State and Territory government are included in table DA.5. Other initiatives include the *National Emergency Management Projects* program ($3.7 million in 2014‑15) (AEM 2015b).

The Australian Government also provides financial support to eligible individuals affected by a disaster. In 2014-15, the Australian Government made payments of $107.6 million in financial assistance via programs such as the Australian Government Disaster Recovery Payment (table DA.7).

A Productivity Commission report into Natural Disaster Funding Arrangements published in 2015 included a recommendation that funding arrangements be examined by governments with a view to ensuring a better balance between mitigation and recovery (Productivity Commission 2015). At its November 2015 meeting, the LCCSC agreed to continue to investigate a new model where the Australian Government would provide recovery funding to states for the reconstruction of essential public assets based on upfront damage assessments and pre-determined reconstruction costs (LCCSC 2015).

#### Emergency service organisations human resources

Nationally in 2014‑15, 35 406 full time equivalent (FTE) people were employed by emergency service organisations. Over half (54.9 per cent) were employed in fire and emergency service organisations, while the remainder were employed by ambulance service organisations (table D.1).

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| Table D.1 Full time equivalent salaried personnel in ambulance, fire and SES organisations, 2014-15a |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | NSW | Vic | Qld | WA | SA | Tas | ACT | NT | Aust |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Total ambulance, fire and emergency service organisations** | | | | | | | | | | | **Ambulance service organisations** | | | | | | | | | | |  | 4 481 | 4 030 | 4 029 | 1 392 | 1 276 | 367 | 240 | 161 | 15 976 | | **Fire and emergency service organisations (FSO and SES)** | | | | | | | | | | | FSOs | 5 368 | 6 625 | 3 044 | 1 505 | 1 066 | 482 | 456 | 307 | 18 853 | | SES | 297 | 184 | na | na | 44 | 25 | 8 | 19 | na | | **Total** | **5 665** | **6 809** | **3 044** | **1 505** | **1 110** | **507** | **464** | **326** | **19 430** | | **Total** | **10 146** | **10 839** | **7 073** | **2 897** | **2 386** | **874** | **704** | **487** | **35 406** | | |
| a See tables DA.4 and DA.17 for detailed footnotes and caveats. **na** Not available. |
| *Source*: State and Territory governments (unpublished); table DA.4. |
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In 2014-15, 256 655 fire, ambulance and emergency service volunteers (and another 1122 community first response ambulance 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, they provide a valuable service to communities (box D.2). However, the government and community do bear some costs of this service, including:

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 <http://www.pc.gov.au/research/ongoing/report-on-government-services/2016/emergency-management#errata>

* 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 wage 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.

A study by the Australian Council of State Emergency Services for selected jurisdictions estimated 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) per year. 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 (Ganewatta and Handmer 2007).

#### Emergency service organisations’ activity

Nationally in 2014-15, emergency service organisations attended a wide range of emergency events, including:

* 3.4 million emergency incidents attended by ambulance service organisations. Ambulance service organisations also attended approximately 1 032 190 urgent incidents and 916 643 non‑emergency incidents (chapter 9 and table D.2)
* 385 118 emergency incidents attended by fire service organisations to a range of emergency events, including structure fires, landscape fires and road crash rescue events (chapter 9 and table D.2)
* 82 382 emergency incidents attended by SES organisations to a range of emergency events, predominantly storm and cyclone events (67 430 incidents), followed by flood events (3759 incidents) and road crash rescue events (2411 incidents) (table DA.18). SES staff and volunteers contributed 354 515 hours of service (table DA.19).

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 <http://www.pc.gov.au/research/ongoing/report-on-government-services/2016/emergency-management#errata>

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| Table D.2 Emergency incidents that emergency service organisations attended, 2014-15**a** |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | NSW | Vic | Qld | WA | SA | Tas | ACT | NT | Aust | | **Ambulance service organisations** | | | | | | | | | | | ‘000 | 894.1 | 833.4 | 946.4 | 262.7 | 274.1 | 74.1 | 47.0 | 38.1 | 3 369.8 | | **Fire service organisations** | | | | | | | | | | | ‘000 | 148.0 | 77.0 | 71.5 | 30.8 | 29.2 | 10.8 | 10.3 | 7.4 | 385.1 | | **SES organisations** | | | | | | | | | | | ‘000 | 40.1 | 21.7 | 12.7 | 0.5 | 5.2 | 1.2 | 0.7 | 0.2 | 82.4 | |
| a See tables DA.3 and DA.18 for detailed footnotes and caveats. **na** Not available. |
| *Source*: State and Territory governments; table 9A.13; table 9A.33; table DA.18. |
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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 (COAG 2009).

Within individual communities, certain members may be more vulnerable or become vulnerable over time and may need tailored advice and support. Factors that can influence vulnerability include:

* *socioeconomic status* — 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 times that of the least disadvantaged areas respectively (Dawson and Morris 2008)
* *English as a second language* — research in WA has been found that culturally and linguistically diverse communities are more vulnerable to fire events (FESA 2010)
* *remoteness and population density* — 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 Royal Commission 2010)
* *ageing populations* — 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 — such as individual medical emergencies requiring an ambulance, or assistance in preparing for and/or responding to a community wide emergency (for example, a natural disaster)
* *population mobility and* *access to services*.

### Service‑sector objectives

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 are common to all Australian emergency services organisations (box D.2).

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| Box D.2 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 * contribute to community recovery * enhance public safety. |
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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 activities 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; exercising, training and testing 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: implementing emergency plans and procedures; issuing emergency warnings; mobilisation of resources in response to emergency incidents; suppression of hazards (for example, fire containment); 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: restoring 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 reflect the key objectives of emergency management (box D.3)
* sector‑wide indicators — three sector‑wide indicators relate to the overarching service sector objectives identified (box D.3)
* 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.

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| Figure D.4 Emergency management sector performance indicator framework |
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### 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.

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, in addition to material in the chapter or sector overview and attachment tables. All DQI for the 2016 Report can be found at www.pc.gov.au/rogs/2016.

#### Community preparedness for emergency events

‘Community preparedness for 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.3).

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| Box D.3 Community preparedness for emergency events |
| ‘Community preparedness for emergency events’ is defined as the number of people who know what to do to prepare for an emergency and/or have developed an emergency plan (evacuations/meeting places, etc), divided by the total population.  The higher the proportion of the population with emergency management practices followed, the more likely the impact of emergency events will be minimised.  Data reported for this measure are:   * comparable (subject to caveats) across jurisdictions but are only available for one reporting period * complete (subject to caveats) for the 2011-12 reporting period. All required 2011-12 data are available for all jurisdictions.   Data quality information for this indicator is at www.pc.gov.au/rogs/2016. |
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In 2011-12, the Australian Research Council Centre of Excellence in Policing and Security (CEPS) and the Institute for Social Science Research (ISSR) conducted the National Security and Preparedness Survey (NSPS). The NSPS found that nationally in 2011‑12, 30.7 per cent of respondents reported that they had developed emergency plans in the event of a natural disaster, while 29.9 per cent of respondents stated that they had ‘a fair bit’ or ‘a lot’ of knowledge of what to do to prepare for natural disasters (table DA.8).

The NSPS results indicate that people were more likely to feel personally prepared for future disasters, where:

* people reported that they perceived it was more likely a natural disaster would affect their home or community. Across jurisdictions in 2011-12, people were more likely to have developed an emergency plan where they perceived that a natural disaster was likely to occur in their community (40.5 per cent nationally) or if they perceived that a natural disaster was likely to affect their home (51.6 per cent nationally) (figure D.5)
* people reported they had a more cohesive community
* people had been present in a previous natural disaster (Ramirez et al. 2013).

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| Figure D.5 Proportion of people that have developed emergency plans in the event of a natural disaster, 2011-12a |
| |  | | --- | | Figure D.5 Proportion of people that have developed emergency plans in the event of a natural disaster, 2011-12  More details can be found within the text surrounding this image. | |
| a See table DA.8 for detailed footnotes and caveats. |
| *Source*: Western, M., Mazerolle, L., and Boreham, P. (2012), *National Security and Preparedness Survey 2011-12*; table DA.8. |
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#### 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’ is defined as the insured asset losses incurred by the community following disaster events divided by the total population. Insured asset losses 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. 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. Costs not currently taken into account include the expenses of:   * emergency response by emergency services * for all levels of government — uninsurable assets such as roads, bridges, and recreational facilities 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.   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.  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 2014-15 data are available for all jurisdictions.   Data quality information for this indicator is at www.pc.gov.au/rogs/2016. |
| *Source*: ICA (2014); AEM (2014a). |
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Nationally in 2014-15, the insured asset loss from emergency events was $3.6 billion, equating to $151.85 per person in the population (tables DA.9-10).

Annual insured asset losses need to be interpreted with caution. 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). For most jurisdictions, the value of asset losses can be very low (or zero) in most years, punctuated by large natural disaster events (table DA.10).

In real terms, insured asset losses in 2014-15 were the highest since 2010‑11 (table DA.9-10 and figure D.6). Other than in 2008‑09 — the year of the Victorian bushfires — insured asset losses are mostly related to flood and storm damage (table DA.9).

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| Box D.5 Extreme weather events |
| In Australia, extreme weather events can bring high winds and coastal storm surges (such as cyclones), torrential rain, frosts and hail storms. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) predicts that weather events in Australia 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 and 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 evacuated, 2000 people were isolated by floodwaters for days (requiring emergency supply drops) and around 40 water rescues took place. The Insurance Council of Australia (ICA) estimated the January 2013 cost at $119 million for NSW and $971 million for Queensland. * *Queensland floods* — Extensive rainfall over large areas of Queensland, led to flooding of historic proportions during December 2010-January 2011. Thirty‑three people died in these 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 ICA 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, caused considerable damage. The ICA estimated the damage at $1.1 billion. |
| *Source*: CSIRO (2012); AEM (2015a); Queensland Government (unpublished). |
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| Figure D.6 Asset loss from emergency events (2014‑15 dollars)a |
| |  | | --- | | Figure D.6 Asset loss from emergency events (2014-15 dollars)  More details can be found within the text surrounding this image. | |
| a See table DA.9 for detailed footnotes and caveats. |
| *Source*: ICA (2014), AEM (2014a); table DA.9. |
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#### Deaths from emergency events

‘Deaths from emergency events’ is an indicator of governments’ objectives 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.7).

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| Box D.6 Deaths from emergency events |
| ‘Deaths from emergency events’ is defined as the number of deaths from emergency events per million people in a calendar year. Three categories are presented:   * road traffic deaths — deaths primarily caused by accidents involving road transport vehicles * 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 or 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 2013 data are available for all jurisdictions.   Data quality information for this indicator is under development. |
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Nationally in 2013, there were 57.9 deaths per million people from emergency events, a decrease from 64.3 deaths per million people in 2012 (table DA.13).

##### Road traffic deaths

Road crash incidents are the single largest contributor to deaths from emergency events reported, making up over 90 per cent of these deaths (tables DA.11 and DA.13).

A primary aim of governments is to reduce death and injury and the personal suffering and economic costs of road crashes (box D.8). 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 1984 to 2013, road traffic deaths declined from 172.8 to 52.3 deaths per million people (figure D.7). 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).

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| Figure D.7 Road traffic deaths, by State and Territory, 1984 to 2013**a** |
| |  | | --- | | Figure D.7 Road traffic deaths, by State and Territory, 1984 to 2013  More details can be found within the text surrounding this image. | |
| a See table DA.11 for detailed footnotes and caveats.. |
| *Source*: ABS (2015) *Causes of Death, Australia*, Cat. no. 3303.0; table DA.11. |
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This sector overview provides data on the number of road traffic deaths only, with 1228 deaths recorded in 2013. However, the impact of over 40 000 traffic injuries and traumas in 2013-14 is both ongoing and costly (box D.7 and chapter 6). Information on the role of police services in maximising road safety is provided in the Police services chapter (chapter 6). The number of road crash rescue incidents attended to by emergency service organisations is presented in the Fire and ambulance services chapter (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, and losses for non‑hospitalised injury were approximately $2200 per injury.  National Road Safety Strategy 2011–2020  On 20 May 2011, the Standing Council on Transport and Infrastructure released an updated *National Road Safety Strategy 2011–2020*. 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.  (continued next page) |
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| Box D.7 (continued) |
| 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 in each jurisdiction.  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 (34 deaths in 2013 nationally, or 1.4 deaths per million people in the population) are recorded as being caused by exposure to forces of nature (table DA.12 and figure D.8). Of these deaths:

* 15 people died from exposure to excessive natural cold
* 14 people died from exposure to excessive natural heat (ABS 2015).

(Caution should be taken when interpreting these results as the ABS have randomly assigned values in categories where the number of deaths are low, to protect confidentiality).

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| Figure D.8 Deaths from exposure to forces of nature, 2004 to 2013**a** |
| |  | | --- | | Figure D.8 Deaths from exposure to forces of nature, 2004 to 2013  More details can be found within the text surrounding this image. | |
| a See table DA.12 for detailed footnotes and caveats.. |
| *Source*: ABS (2015) *Causes of Death, Australia*, Cat. no. 3303.0; table DA.12. |
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Research indicates that extremely cold weather conditions and intense and long heatwaves can exceed the capacity of some sections of the community to cope. The impact of these events are likely to be understated in the ABS cause of death statistics, as heat related deaths tend to exacerbate existing medical conditions, particularly in the frail and elderly (Nairn and Fawcett 2013) (box D.8).

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| Box D.8 Heatwaves in Australia |
| The Centre for Australian Weather and Climate Research has defined a heatwave as:  A period of at least three days where the combined effect of excess heat and heat stress is unusual with respect to the local climate. Both maximum and minimum temperatures are used in this assessment (Nairn and Fawcett 2013).  Recent heatwave events include:   * January 2014 — In the second week of January 2014, the extreme heat in WA that saw record breaking temperatures of up to 48°C, moved eastwards into SA and Victoria. * The Victorian Government estimated that there were 167 deaths in excess of the average expected between 12 and 18 January (AEM 2014a). In Melbourne, 8359 ambulances were dispatched and 621 people presented to emergency departments with heat‑related symptoms * In SA, the heatwave resulted in 275 people being admitted to hospital for heat‑related conditions. * January 2009 — From 27 January until 8 February a heatwave affected parts of south‑eastern Australia. * The Victorian Government estimated that there were 374 excess deaths during the week of the heatwave (DHS 2009). Ambulance Victoria metropolitan emergency case load recorded a 25 per cent increase in emergency cases and a 2.8 fold increase in cardiac arrest cases * SA similarly recorded increased demand during the heatwave where SA Ambulance Service daily call‑outs increased by 16 per cent when compared to previous heatwaves (Nitschke et al. 2011). |
| *Source*: AEM (2014a); DHS (2009); Nairn and Fawcett (2013); Nitschke et al. (2011). |
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##### Fire deaths

The number of fire deaths varies from year to year, often impacted by large bushfires.  
In 2013 there were 99 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.9).

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| Box D.9 Reporting on all‑hazards |
| While the sector covers a broader array of events, data on all hazards are 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. A review by the Monash Injury Research Institute (2012) of recent disaster inquiries recognised knowledge management (databases, research and evaluation) as a key theme identified in these reports. Recent inquiries include the Tasmanian Bushfires Inquiry (2013), Victorian Bushfires Royal Commission (2009), Perth Hills Bushfire February 2011 Review (Keelty 2011), and the Queensland Floods Commission of Inquiry (2012). |
| *Source*: Monash Injury Research Institute (2012). |
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Each performance indicator framework provides comprehensive information on the equity, effectiveness and efficiency of specific government services.

Additional information is available in each chapter and associated attachment tables to assist the interpretation of these results.

#### Fire events

The performance indicator framework for fire events is presented in figure D.9. An overview of the fire events indicator results are presented in table D.3.

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| Figure D.9 Fire events performance indicator framework |
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This page has been changed since an earlier version of the Report. See errata at  
 <http://www.pc.gov.au/research/ongoing/report-on-government-services/2016/emergency-management#errata>

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| Table D.3 Performance indicator results for fire events**a, b** |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | NSW | Vic | Qld | WA | SA | Tas | ACT | NT | Aust | | Equity and effectiveness — prevention/mitigation indicators | | | | | | | | | | | **Fire incidents** | | | | | | | | | | | Fire incidents attended by fire service organisations per 100 000 people, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | no. | 408 | 373 | 400 | 443 | 422 | 669 | 220 | 1 154 | 413 | | *Source:* Attachment table 9A.14 | | | | | | | | | | | Accidental residential structure fires per 100 000 households, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | no. | 95.2 | 113.4 | 46.9 | 60.2 | 73.6 | 112.9 | 89.1 | 51.4 | 84.5 | | *Source:* Attachment table 9A.15 | | | | | | | | | | | **Level of safe fire practices in the community** | | | | | | | | | | | Estimated percentage of households with a smoke alarm/detector, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | % | 94.4 | 97.2 | 94.9 | na | na | na | na | 80.0 | na | | *Source:* Attachment table 9A.23 | | | | | | | | | | | Equity and effectiveness — preparedness indicators | | | | | | | | | | | **Firefighter workforce** | | | | | | | | | | | Number of firefighting personnel (FTE) per 100 000 people, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | no. | 54.4 | 80.4 | 52.9 | 42.7 | 52.3 | 59.4 | 90.5 | 115.9 | 60.5 | | *Source:* Attachment table 9A.24 | | | | | | | | | | | **Equity and effectiveness — response indicators** | | | | | | | | | | | **Response times to structure fires** | | | | | | | | | | | State-wide response times to structure fires, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | Including call taking time, 90th percentile | | | | | | | | | | | min. | 14.1 | 10.9 | 12.3 | 15.2 | 11.7 | 17.7 | 11.0 | 23.2 | na | | Excluding call taking time, 90th percentile | | | | | | | | | | | min. | 13.2 | 9.5 | 11.6 | 13.6 | 14.0 | 16.3 | 9.0 | 15.1 | na | | *Source:* Attachment tables 9A.27 | | | | | | | | | | | **Efficiency indicators** | | | | | | | | | | | **Fire services expenditure per person** | | | | | | | | | | | Fire service organisations' expenditure per person, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | $ | 131.63 | 214.31 | 129.96 | 145.61 | 134.85 | 157.24 | 211.64 | 220.13 | 156.42 | | *Source:* Attachment table 9A.29 | | | | | | | | | | |
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| Table D.3 (continued) |
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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. – Nil or rounded to zero. |
| *Source*: Chapter 9 and attachment 9A. |
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#### Ambulance events

The performance indicator framework for ambulance events is presented in figure D.10. An overview of the ambulance events indicator results are presented in table D.4.

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| Figure D.10 Ambulance events performance indicator framework |
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| Table D.4 Performance indicator results for ambulance events**a, b, c** |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | NSW | Vic | Qld | WA | SA | Tas | ACT | NT | Aust | | Equity — Access indicators | | | | | | | | | | | **Response locations** | | | | | | | | | | | Paid, mixed and volunteer locations per 100 000 people, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | no. | 3.2 | 4.5 | 5.6 | 7.6 | 6.6 | 9.7 | 2.1 | 3.7 | 4.9 | | *Source:* Attachment table 9A.38 | | | | | | | | | | | **Availability of ambulance officers/paramedics** | | | | | | | | | | | Number of full time equivalent ambulance officers/paramedics per 100 000 people, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | no. | 42.1 | 50.0 | 61.5 | 28.8 | 45.0 | 47.7 | 36.0 | 37.7 | 46.7 | | *Source:* Attachment table 9A.35 | | | | | | | | | | | **Urban centre response times** | | | | | | | | | | | Capital city centre response times, 90th percentile, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | min. | 21.2 | 18.3 | 15.1 | 14.3 | 14.7 | 17.5 | 12.5 | 18.2 | na | | *Source:* Attachment table 9A.44 | | | | | | | | | | | Effectiveness — Access indicators | | | | | | | | | | | **State-wide response times** | | | | | | | | | | | State-wide response times, 90th percentile, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | min. | 22.9 | 22.1 | 16.4 | 16.8 | 16.8 | 24.0 | 12.5 | 17.5 | na | | *Source:* Attachment table 9A.44 | | | | | | | | | | | **Triple zero call answering time** | | | | | | | | | | | 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, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | % | 86.1 | 93.8 | 91.2 | 94.4 | 92.3 | 96.8 | 95.8 | 93.4 | 89.5 | | *Source:* Attachment table 9A.45 | | | | | | | | | | | **Effectiveness — Sustainability indicators** | | | | | | | | | | | **Workforce by age group** | | | | | | | | | | | Operational workforce under 50 years of age, 2014-15 | | | | | | | | | | | Most recent data for this measure are comparable and complete, subject to caveats (chapter 9) | | | | | | | | | | | % | 75.6 | 77.3 | 80.0 | 79.8 | 75.5 | 74.5 | 80.3 | 85.0 | 75.2 | | *Source:* Attachment table 9A.36 | | | | | | | | | | |
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This page has been changed since an earlier version of the Report. See errata at  
 <http://www.pc.gov.au/research/ongoing/report-on-government-services/2016/emergency-management#errata>

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| Table D.4 (continued) |
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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. c The percentages reported for this indicator include 95 per cent confidence intervals. **na** Not available. .. Not applicable. |
| *Source*: Chapter 9 and attachment 9A. |
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## 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 Royal Commission 2010; Queensland Floods Commission of Inquiry 2012).

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 and 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 2012).

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 this Report does 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 address populations and communities with special needs. The National Strategy for Disaster Resilience recognises that the needs of vulnerable communities should be considered in developing emergency management plans and programmes. ANZEMC has also identified the resilience of vulnerable sections of society (including Aboriginal and Torres Strait Islander Australians, culturally and linguistically diverse communities, children and youth, the elderly and people with disability) as a priority area for action (COAG 2012).

Remote Indigenous communities face complex emergency management risks and challenges. The 2007 *Keeping Our Mob Safe: The National Emergency Management Strategy For Remote Indigenous Communities* provides a framework for coordinated and cooperative approaches to emergency management in remote indigenous communities (AEM 2007). The strategy is currently under review to ensure that it remains up-to-date and continues to meet the needs of Indigenous communities. The capacity of remote Indigenous communities to improve their disaster resilience is also supported by a pilot of community based and community led emergency management training across central, northern and north-west Australia. This training will build local capacity, help communities refine local emergency management plans and improve service delivery by emergency management organisations.

## D.4 Future directions in performance reporting

This emergency management sector overview will continue to be developed in future reports. 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 a database and report on the economic costs of natural disasters
* development of measures and indicators to assess communities’ resilience to natural disasters
* development of a national reporting framework against the UN *Sendai Framework for Disaster Risk Reduction, 2015-2030*, once indicators are agreed at the international level.

The Fire and ambulance services chapter (chapter 9) 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). Attachment tables are available on the website (www.pc.gov.au/rogs/2016).

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| --- | --- | --- |
| Emergency management | | |
| **Table DA.1** | Summary of emergency management organisations by event type | |
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| **Table DA.3** | Emergency service organisations' costs, 2014-15 | |
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| **Table DA.8** | National security and preparedness survey, 2011-12 | |
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| **Table DA.11** | Road traffic death rate | |
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| State and Territory Emergency Services | |
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| **Table DA.18** | State and Territory Emergency Service incidents |
| **Table DA.19** | State and Territory Emergency Service hours in attendance |

## D.6 References

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