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## B Australian approaches

This appendix provides an overview of climate change adaptation policies that are currently in place in Australia. All levels of government — Australian, state, territory and local — have implemented measures to adapt to the impacts of climate change. These range from policy frameworks to research efforts, information provision, and tools for evaluating climate change threats and opportunities.

### B.1 Intergovernmental work on adaptation

In 2007, the Council of Australian Governments (COAG) agreed to a National Climate Change Adaptation Framework. The Framework outlined strategies to understand and manage climate change impacts in key sectors (such as water resources, biodiversity and health) and regions (such as the Murray–Darling Basin and the dry regions of eastern Australia) to be implemented over five to seven years (COAG 2007b). Within each sector and region, the Framework proposed potential adaptation actions, such as research programs, vulnerability assessments and amendments to existing policies to reflect climate change risks. To support these actions an implementation plan was to be developed in 2007, with biennial reports on implementation and a full review in the fourth year. Neither the biennial reports nor the implementation review were undertaken.

A Select Council on Climate Change (SCCC) was announced on 13 February 2011 as part of the new COAG system of ministerial councils. It was formally established on 18 January 2012. Broadly speaking, the aim of the SCCC is to inform nationally significant climate change policy and provide a forum for the Australian Government to work with state, territory and local governments, and New Zealand, on implementing climate change programs. This includes developing national adaptation priorities and work plans. The SCCC held its first meeting in May 2012 and released a number of documents, including a discussion paper setting out principles for allocating climate change risks and the roles and responsibilities of private parties and governments in adaptation. The paper identified three components of the role of governments.

1. Providing information to the public on climate change and adaptation options.

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2. Ensuring regulatory arrangements do not distort market signals and that risks are appropriately recognised and apportioned across governments.
  3. Ensuring that climate change considerations are accounted for in the Australian Government's management of public assets, and policy development and implementation (COAG Select Council on Climate Change 2012b).

The SCCC also identified seven national priorities for adaptation action.

- Water resources.
- Coasts.
- Infrastructure.
- Natural ecosystems.
- Agriculture.
- Emergency management.
- Vulnerable communities (COAG Select Council on Climate Change 2012a).

An Adaptation Working Group will be responsible for developing work plans for these national priorities (DCCEE 2012j).

## **B.2 Australian Government**

### **Overarching approach**

The Australian Government's climate change policy is based on three pillars.

1. Mitigation — to reduce greenhouse gas emissions.
2. Adaptation — to respond to the unavoidable effects of climate change.
3. Global solution — to help shape an international response to climate change (DCCEE 2012k).

To date, governments have focused largely on the first and third of these pillars, with relatively little focus on adaptation. In 2010, the Australian Government released the position paper *Adapting to Climate Change in Australia* (DCCEE 2010a). The paper outlined the Australian Government's approach to adapting to climate change at the time. It noted that a key function of Australian governments would be to create 'the right conditions and incentives for businesses and the community to make efficient investment decisions and manage the risks from climate change impacts' (DCCEE 2010a, p. 8).

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The position paper outlined broadly similar roles and responsibilities of governments in climate change adaptation to those in the SCCC's discussion paper. It indicated that since climate change will have widespread effects on the economy and society, the Australian Government will have an important role in leading and coordinating the national adaptation effort, especially in areas that relate to national prosperity and security.

To track progress on adaptation, the position paper committed to commission a 'Climate Futures Report' every five years, with the first report due before the end of 2010. These reports were intended to assess 'how well Australia is placed to deal with climate change risks and evaluate the effectiveness of policy measures taken by governments to improve resilience to climate change impacts' (DCCEE 2010a, p. 16). The first Climate Futures Report has not yet been released.

## **Roles and responsibilities**

In its 2012 discussion paper, the SCCC noted that climate change adaptation is a shared responsibility and will require involvement by businesses, communities, individuals and governments at all levels (COAG Select Council on Climate Change 2012b). However, the nature of involvement will vary across these groups. In this context, the discussion paper provided some detail of the appropriate roles of each level of government in adaptation.

The SCCC considers that the main roles and responsibilities of the Australian Government are to:

- provide 'most of' the public-good research and information required for effective adaptation by businesses, communities and governments
- manage Australian Government assets (including defence facilities, national parks and reserves) and programs
- lead a national adaptation reform to promote effective adaptation through collaboration with states and territories
- maintain a strong and flexible economy with an appropriate social safety net (COAG Select Council on Climate Change 2012b).

## **General frameworks**

In most cases, the Australian Government considers that adaptation responses will be embedded within existing policy and institutional frameworks. New frameworks

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will only be considered where it is demonstrated that existing frameworks are not able to manage climate change risks effectively (DCCEE 2010a).

In addition to the National Climate Change Adaptation Framework established by COAG (section B.1), a National Framework for Climate Change Science was adopted in May 2009. It endeavours ‘to bring together Australia’s climate science expertise to deliver the essential climate science needed for an effective national response to climate change’ (DCC 2009a, p. 7). The Framework includes different elements to identify future climate change science priorities, resources needed to meet forthcoming science requirements, and how to use the country’s scientific capabilities to address those priorities.

The Framework focuses on the ‘fundamental climate system science’ required to develop adaptation and mitigation strategies and does not cover ‘adaptation science’ (how human activities or the management of natural ecosystems may need to change in response to the impacts of climate change) (DCC 2009a). However, fundamental climate system science is expected to provide critical information to support how the community adapts. To this end, the Framework calls for close links between the climate change science community and the adaptation research community, in particular the CSIRO’s Climate Adaptation Flagship (box B.1) and the National Climate Change Adaptation Research Facility (box B.2).

## **Current policies**

The Australian Government has adopted a range of policies to support climate change adaptation. On the whole, these policies generally fall under one of the two distinct policy frameworks for adaptation (the National Climate Change Adaptation Framework and the National Framework for Climate Change Science) or address one of the national (sectoral) priority areas identified by the SCCC. However, there is considerable overlap across these areas and at times the linkages between frameworks and policies are unclear.

### *Climate change science*

The Australian Government has implemented a number of initiatives supporting climate change science research, some of which fall under the National Framework for Climate Change Science. These range from broad research programs such as the CSIRO’s Climate Adaptation Flagship (box B.1) and the Australian Climate Change Science Program, to sector-specific programs such as the Marine and Climate Super Science Initiative.

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### **Box B.1 The CSIRO's Climate Adaptation Flagship**

The CSIRO's Climate Adaptation Flagship was established under its National Research Flagships Program. It provides scientific information and expertise across four research themes.

1. Pathways to adaptation — provides climate information to scientists and external users. It examines the social and economic aspects of vulnerabilities and adaptation options at the regional and national levels. It also analyses the international impacts of climate change and adaptation responses.
2. Sustainable cities and coasts — helps cities and coastal regions adapt to climate change by preparing for coastal inundation and extreme weather events, understanding climate-related health risks and managing the potential threats from climate change.
3. Managing species and natural ecosystems in a changing climate — identifies and manages the climate change threats faced by biodiversity and ecosystems.
4. Primary industries, enterprises and communities adapting to climate change — offers adaptation options to primary industries and resource sectors to help them manage climate change risks and opportunities.

*Source:* CSIRO (2011a).

The Australian Climate Change Science Program has been active since 1989 and now falls under the National Framework for Climate Change Science. It centres its activities on a number of main themes: understanding the key drivers of climate change in Australia, improving climate modelling and producing regional climate change projections, and promoting international research collaboration. Recent activities supported by the Program include monitoring the effects of climate change on marine indicators (ocean temperature, acidification and salinity), analysing climate and weather systems, and developing Australia's climate modelling capability.

To improve research in marine and climate science, the Government allocated \$387 million to the Marine and Climate Super Science Initiative (announced in 2009 with funding available until 2013). These funds will be used to improve marine infrastructure at the Australian Institute of Marine Science, upgrade Australia's climate change computing capacity, and develop research facilities (DCCEE 2012a).

In 2011, the Government established the Climate Commission as an independent body to provide expert advice and information to the community about the science and impacts of climate change, and the effects of climate change mitigation. The

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Commission holds regular public forums and has released a number of reports (Climate Commission 2011a).

### **Box B.2 National Climate Change Adaptation Research Facility**

The National Climate Change Adaptation Research Facility is a national interdisciplinary research program established in 2007 to provide decision makers with information to manage the risks of climate change. Its activities focus on nine priority themes: water resources and freshwater biodiversity; marine biodiversity and resources; terrestrial biodiversity; primary industries; settlements and infrastructure; indigenous communities; human health; emergency management; and social, economic and institutional dimensions of climate change.

The National Climate Change Adaptation Research Facility organises its activities around four key areas.

1. *Adaptation research networks* hosted by research institutions around Australia support interdisciplinary research aimed at advancing climate adaptation knowledge
2. *Thematic research* addresses the priorities identified by the National Adaptation Research Plans. These Plans identify current gaps in knowledge across the priority themes as well as priority adaptation research questions.
3. *Synthesis and integrative research* draws together and develops research capacity for 'cross cutting' issues and issues that are not particular to one theme.
4. *Knowledge communication and adoption* ensure that decision makers have information they need and can readily use.

Source: NCCARF (2011).

### *Climate change adaptation*

The Climate Change Adaptation Program<sup>1</sup> was established under the National Climate Change Adaptation Framework to help Australians understand the risks and potential opportunities associated with climate change. The 2007-08 Australian Government budget provided up to \$126 million over five years for the Program, with an additional \$3 million provided in the 2012-13 budget. This funding has been directed at a number of grant programs, national vulnerability assessments, and research efforts. These include:

- the National Climate Change Adaptation Research Facility (box B.2)
- national climate change risk assessments in sectors such as biodiversity and coastal management. One example is a case study examining the potential

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<sup>1</sup> This Program was previously known as the Australian Centre for Climate Change Adaptation.

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effects of climate change and sea-level rise on the South Alligator River, located in the Kakadu National Park

- grants for local governments to undertake local risk assessments and develop adaptation action plans. These include \$109 000 for the Mid-West Regional Organisation of Councils (WA) to examine threats from droughts and sea-level rise, and \$120 000 to Towong Shire Council (Victoria), Alpine Shire Council (Victoria) and the North East Greenhouse Alliance (Victoria) for research into the impacts of climate change on the alpine region (DCC 2009c)
- a Climate Change Adaptation Skills for Professionals Program that provides funds for tertiary education institutions to revise or establish professional development and accreditation programs for architects, planners, natural resource managers and engineers.

### *Sector-specific programs*

The Government also has a range of sector-specific programs which relate to the national priority areas identified by the SCCC (section B.1) and in the Australian Government's 2010 position paper (DCCEE 2010a). These programs support the broad adaptation objectives established under the two previously discussed general policy frameworks. The programs are not always dedicated adaptation programs, but rather incorporate adaptation into broader sector-specific policy arrangements. Some examples of sector-specific programs are provided below.

### *Coastal management*

The Australian Government has implemented a number of initiatives to help coastal communities prepare for and adapt to climate change. These include:

- the Caring for our Coasts policy, which involves funding for a Community Coast Care Program and the Great Barrier Reef Rescue Plan as well as consultation with coastal councils and other stakeholders on how coastal regions can address current and future climate challenges (DCCEE 2012b). Caring for our Coasts also includes a National Coastal Risk Assessment, which involved two reports on the effects of climate change on coastal areas (DCCEE 2012g)
- the Coastal Adaptation Decision Pathways Program, through which the Australian Government has provided \$4.5 million to councils and alliances of councils to develop effective approaches to improve the management of future climate risks to coastal assets and communities. Projects were due for completion in June 2012 (DCCEE 2012e).

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In 2009, the Australian Government established the Coasts and Climate Change Council to engage with communities on coastal climate change adaptation issues and to provide advice to the Government on the implications of coastal climate change for decision making. The Council's initial report made a number of recommendations, including the development of a ten-year national agenda for managing the effects of climate change in the coastal zone. The Council provided a final report to the Minister for Climate Change and Energy Efficiency in December 2011.

### *Water*

The Australian Government is providing \$13 billion for the Water for the Future initiative. This initiative has been described by the Government as the 'single largest investment in climate change adaptation' (DCCEE 2012a). It involves a wide range of policies aimed at improving the efficiency and sustainability of water use, supporting healthy rivers and wetlands, and understanding the implications of climate change for Australia's water supply.

Water for the Future advances the implementation of the National Water Initiative, which outlines the role that all state and territory governments and the Australian Government will play in managing Australia's water resources. It also sets the framework for urban water reform. The 2009 and the 2011 biennial assessments of the Initiative both recommended considering the impacts of climate change on water resources in future water allocation plans.

### *Agriculture*

The Australian Government funds primary producers to adapt and respond to climate change under Australia's Farming Future initiative. Elements of the initiative relevant to adaptation include funding for agricultural research projects and on-farm demonstrations related to climate change adaptation (and mitigation), grants for primary producers to attend training courses in areas including managing climate change impacts, free business analysis and financial assessments, and transitional income assistance (DAFF 2011).

### *Emergency management*

Following on the decision from the Ministerial Council for Police and Emergency Management that Australian emergency management should focus on community and organisational resilience, COAG adopted the National Strategy for Disaster Resilience in February 2011. The Strategy calls for a joint effort from all levels of

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government, businesses, individuals, the not-for-profit sector and the community to improve the country's ability to resist and recover from emergencies and disasters (COAG 2011). The purpose of the Strategy is to provide guidance and direction on disaster management to individuals, organisations and governments. This covers the role that each party has to play in managing their climate change risks, collaborative approaches to increasing disaster resilience, and reducing disaster risk to communities through amendments to the planning system.

In addition to the National Strategy for Disaster Resilience, the Australian Government also works through the National Partnership Agreement on Natural Disaster Resilience to promote resilience against natural disasters in collaboration with state and territory governments. Under the financial arrangements for the Agreement, approximately \$100 million of Australian Government funding is divided between the states and territories over the four years from 2009 to 2013. These funds are used for a range of disaster-mitigation activities, such as natural disaster risk assessments, community education programs, disaster-mitigation infrastructure and early-warning systems (COAG 2009b).

#### *International partnerships*

As part of its contribution to a global response to climate change, the Australian Government is involved in a number of partnerships to support adaptation efforts in other countries. For example, Australia contributes to international programs on climate change impacts, vulnerability and adaptation through the United Nations Framework Convention on Climate Change (appendix C).

Climate change adaptation is also part of Australia's international aid efforts to vulnerable countries in the region. In that respect, the Australian Government has contributed \$328 million over five years (2008 to 2013) to the International Climate Change Adaptation Initiative. This provides technical assistance and funding to countries most vulnerable to the impacts of climate change, particularly in the Asia-Pacific region. The main objectives of the Initiative are to improve local climate change science, better understand climate change impacts and vulnerabilities in partner countries, and support adaptation efforts (AusAID 2011b). In addition, the Australian Government participates in some United Nations Development Programme activities related to adaptation and contributes funding to the Global Environment Facility (AusAID 2011a).

## *Funding arrangements for selected adaptation measures*

The Australian Government has committed substantial funding to support climate change adaptation measures. A selection of these measures and their funding arrangements is outlined in table B.1.

**Table B.1 Funding arrangements for selected adaptation measures<sup>a</sup>**  
Australian Government

<i>Adaptation measure</i>	<i>Funding arrangements</i>
Australian Climate Change Science Program	Funding of \$31 million to support climate change science research activities.
Caring for our Coasts	Includes \$100 million for a five-year Community Coast Care Program, \$200 million for a five-year Great Barrier Reef Rescue Plan, and \$25 million over five years to support climate change adaptation in coastal communities.
Climate Change Adaptation Program	Funding of up to \$126 million to help Australians better understand climate change risks and opportunities. The 2012-13 Australian Government budget provided an additional \$3 million to the Program.
Coastal Adaptation Decision Pathways	Funding of \$4.5 million to demonstrate effective adaptation in the coastal zone.
Climate change adaptation measures through the Department of Climate Change and Energy Efficiency	Funding of \$117 million (2008–12) in climate change adaptation initiatives and research to support the implementation of the National Climate Change Adaptation Framework.
Natural Resource Management (NRM) Climate Change Impacts and Adaptation Research Grants Program	Funding of \$8 million available to research institutions to provide information on climate change impacts and adaptation responses that is relevant to natural resource management planning.
International Climate Change Adaptation Initiative	Funding of \$150 million over three years from 2008-09 to support climate change adaptation in vulnerable countries in Australia's region. The 2010-11 budget increased this funding by \$178 million for another two years.
National Climate Change Adaptation Research Facility	\$20 million from the Australian Government to support its main functions and Adaptation Research Networks. It also received funding of up to \$30 million through the Climate Change Adaptation Research Grants Program to address priority research identified in the National Adaptation Research Plans.
Marine and Climate Super Science Initiative	Funding of \$387 million to promote research in marine and climate science by providing funds for high-performance computing, new observation systems and developing research facilities.
Water for the Future	Funding of \$13 billion to manage Australia's water supply and take action on climate change.

<sup>a</sup> Figures in this table represent funding announced by the Australian Government and may apply over multiple years. In some cases, program funding has already ceased.

Sources: AusAid (2011b); DCC (2009a); DCCEE (2012a, 2012e, 2012h, 2012k); NCCARF(2010).

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## **B.3 State and territory governments**

### **Overarching approaches**

Almost all Australian states and territories have overarching approaches to plan for, and adapt to, the impacts of climate change. In some states and territories, adaptation policy is integrated into general climate change policy responses (such as in Victoria and the ACT) and in others, adaptation policy is implemented through dedicated adaptation strategies (such as the ClimateSmart Adaptation 2007–12 strategy in Queensland and South Australia’s Draft Climate Change Adaptation Framework).

A number of state and territory governments have enacted climate change legislation, which guides their approach to climate change, and in some instances commits governments to report against progress (box B.3). Climate change legislation exists in Victoria, South Australia, Tasmania, and the ACT.

While progress in developing adaptation strategies differs by state and territory, there are significant commonalities in the adopted approaches. In particular, the current focus of activities has been on conducting research into climate change impacts, identifying priority sectors for action and undertaking vulnerability assessments in different sectors and regions.

### **General frameworks**

State and territory governments are currently in different stages of development of adaptation policy responses (box B.3).

- Queensland, Tasmania and the ACT have had climate change strategies in place for some time. Queensland and the ACT are in the process of updating these (Queensland’s ClimateSmart Adaptation plan concludes in 2012 and the ACT’s climate change Action Plan 1 concluded in 2011).
- In late 2010, South Australia released a Draft Climate Change Adaptation Framework, with a final version yet to be approved by Cabinet.
- Victoria and the Northern Territory are yet to release adaptation plans despite commitments to do so (in Victoria’s case, an Adaptation Plan is not due until 31 December 2012).
- New South Wales does not currently have an explicit adaptation strategy. It has several sector-specific adaptation policies in place and is working through COAG on adaptation policy more broadly (NSW Government 2012a).

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- While adaptation forms one of the four substantive elements of the 2004 Western Australian Greenhouse Strategy, this strategy does not set out specific adaptation actions. However, it provides support for projects to generate and communicate information regarding climate change impacts.

Development of adaptation policy has, in some cases, been affected by other ongoing policy development processes. In particular, state and territory governments' responses to recent natural disasters have implications for adaptation policy, such as reforms enacted following the Queensland Floods Commission of Inquiry and the Victorian Bushfires Royal Commission.

To coordinate climate change issues across the whole of government, a number of state and territory governments have established dedicated climate change offices or units within Premiers' departments or environment departments. For example, the Tasmanian Government has established an adaptation unit within the Tasmanian Climate Change Office. The Office leads efforts to respond to climate change and has the role of coordinating and facilitating climate change action across the Tasmanian Government (Tasmanian Government 2012b).

A number of state and territory governments have also established independent bodies or government advisory groups to provide advice to governments on climate change issues.

- The South Australian Premier's Climate Change Council is an independent council that advises the Premier on climate change mitigation and adaptation issues (SA Government 2012a).
- The Tasmanian Climate Action Council provides independent advice on the Tasmanian Government's response to climate change. The Council is required to report annually on its activities and biennially on climate change issues. In the 2008–10 biennial report the Council noted that the Government's Draft State Coastal Policy (2008) inadequately addressed climate change and needed to be revised to incorporate adaptation goals (Tasmanian Climate Action Council 2010).
- The ACT Climate Change Council provides advice to the Minister for Environment and Sustainable Development on climate change issues, including adaptation (the first report is due in 2012) (ACT Government 2012a).

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## Box B.3 State and territory overarching adaptation responses

### New South Wales

The NSW Government is working through COAG to identify required reforms and priority areas for adaptation policy. It has incorporated climate change adaptation in its ten-year strategic business plan, NSW 2021. The State Government also supports initiatives relating to climate change research and vulnerability assessments.

### Victoria

The *Climate Change Act 2010* (Vic) guides the Victorian Government's actions on climate change mitigation and adaptation. It requires the Government to develop a Climate Change Adaptation Plan every four years (the first is due by 31 December 2012) and to report every two years on climate change science and emissions data. The Plan will assess the climate change risks faced by various regions in Victoria and discuss strategies to adapt to their potential impacts. The Act also requires the State Government to take climate change into account in specified areas of decision making. A review of the Act was completed in December 2011.

### Queensland

ClimateSmart Adaptation 2007–12 is an action plan that provides direction for managing the impacts of climate change in government and business decision making. It identifies a number of priority sectors for adaptation action. These include water planning and services, agriculture, human settlements, natural environments and landscapes, and emergency services. To facilitate effective adaptation, the plan suggests that adaptation responses should be developed by building and sharing knowledge, considering climate change in decision making, and reducing exposure and increasing adaptive capacity.

### South Australia

The *Climate Change and Greenhouse Emissions Reduction Act 2007* (SA) commits the South Australian Government to work with businesses and the community to put in place strategies to adapt to climate change. This has included the development of a Draft Climate Change Adaptation Framework for South Australia and the establishment of the Premier's Climate Change Council. The Minister for Sustainability and Climate Change is required to report on the operation of the Act on a biennial basis.

The Framework provides overarching state-wide objectives to guide adaptation and involves a regional approach to adaptation across 12 regions. It advocates the use of regional vulnerability assessments to understand the community's climate change exposure and also provides guidance for regional adaptation planning. This approach also includes sectoral agreements between the State Government, industry, community and regional groups. The draft framework is currently being reviewed by the Government.

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## Box B.3 (continued)

### **Western Australia**

The State Government developed the Western Australian Greenhouse Strategy in 2004 to guide its response to climate change. One of the Strategy's four central elements is climate change adaptation. The Strategy establishes a number of projects to undertake research on climate change in Western Australia and provide this information to affected groups to facilitate climate change adaptation.

### **Tasmania**

The Tasmanian Framework for Action on Climate Change (Tasmanian Government 2008) sets a policy framework aimed at reducing greenhouse gas emissions, adapting to expected climate change impacts, and capturing the new opportunities resulting from climate change. To achieve its objectives relating to adaptation, the Framework proposes a number of potential actions. These involve promoting scientific research on climate change; providing adaptation information to individuals, communities and businesses; managing climate change risks to public assets and communities; and working with local governments and communities to facilitate adaptation.

### **Northern Territory**

A \$34 million Climate Change Policy released in 2009 sets out the main mitigation and adaptation policies and targets of the Territory Government. These include a commitment to develop a Territory Climate Change Adaptation Action Plan (this was scheduled for release by the end of 2011). The plan will detail the impacts and risks of climate change, develop a risk analysis model for ecosystems, and form strategies to address the health and environmental impacts of climate change. Climate change issues are also acknowledged in the Territory 2030 Strategic Plan.

### **Australian Capital Territory**

The ACT Climate Change Strategy 2007–2025 outlines the expected impacts of climate change and sets out the Government's approach to climate change. Action plans will be released at regular intervals throughout the duration of the Strategy, committing the Government to a number of specific actions. Action Plan 1 (covering the period 2007–11) identifies a number of actions to facilitate climate change adaptation, ranging from vulnerability assessments to climate change research, information provision and protection of biodiversity. The *Climate Change Greenhouse Gas Reduction Act 2010* (ACT) established the ACT Climate Change Council and requires the Minister for Environment and Sustainable Development to report annually against the requirements of the Act.

*Sources:* ACT Government (2007); NSW Government (2012a); NT Government (2009); Queensland Government (2007); SA Government (2010a, 2012b); Tasmanian Government (2008, 2012a); Victorian Government (2012b); WA Greenhouse Task Force (2004).

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## Roles and responsibilities

The SCCC considers that state and territory governments will have a large role in direct adaptation action for a number of reasons.

- They deliver a broad range of services and manage a large number of assets. State services that may be affected by climate change include protection against flooding and sea-level rise, emergency management, public health and environmental protection. Assets exposed to climate change risk include national parks and reserves.
- They are responsible for most of the regulation that may influence the ability of businesses and communities to adapt to a changing climate. This may include building codes, land-use planning and environmental legislation (COAG Select Council on Climate Change 2012b).

The SCCC indicates that, in principle, state and territory governments will:

- provide local and regional science and information — by collaborating with other tiers of government to provide climate change projections, assess climate risks and understand the costs and benefits of adaptation
- be responsible for state and territory assets and programs — by managing climate change impacts on public assets (for example, natural assets and electricity networks) and services (for example, emergency management, health services and land-use planning)
- work with the Australian Government to implement a national adaptation reform — by collaborating on a consistent approach to adaptation, managing national adaptation priorities, and monitoring and evaluating arrangements to ensure adaptation responses are effective and well targeted.
- implement measures to enhance adaptive capacity — by encouraging the public to consider climate change risks and ensure that state and territory legislation and policy do not hinder effective adaptation (COAG Select Council on Climate Change 2012b).

State and territory governments have outlined their roles in the adaptation process in a number of policy documents. While differences exist across jurisdictions, the general view of state and territory governments is fairly consistent with the SCCC's vision. They believe that their roles and responsibilities can be broadly categorised as:

- encouraging climate change research and providing relevant information on climate change science and potential adaptation strategies to businesses, communities and individuals

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- using regulatory and policy instruments such as land-use planning and building codes to reduce exposure to climate change risks
  - managing potential climate change impacts on public assets and services
  - promoting a collaborative approach to manage climate change risks and respond to climate change
  - taking primary responsibility for coastal planning and management (with the exception of the ACT) (ACT Government 2007; NT Government 2009; Queensland Government 2007; SA Government 2010a).

## **Current policies**

State and territory governments have implemented a range of policies relating to climate change adaptation. In most cases, they focus on climate change research, information provision on climate change impacts and adaptation, and vulnerability assessments. In other cases, to address the priority areas identified by some state and territory governments, policies examine sectoral climate change and adaptation issues in areas such as land-use planning, water provision, protection of the natural environment and emergency management. Some examples of these policies are provided below.

### *Research and information provision*

Providing relevant information on climate change science and adaptation can help governments, businesses, communities and individuals make better informed decisions about how to respond to climate change (chapter 7). State and territory governments have implemented a range of measures to generate information relevant to climate change and adaptation and disseminate this information to stakeholders.

Climate change science initiatives generally focus on undertaking specialised research and delivering climate science information to inform state or territory responses to climate change. In some cases, these initiatives involve working in collaboration with local or international partners to generate climate science information regarding the expected state-wide effects of climate change. For example, the Queensland Climate Change Centre of Excellence focuses on climate science research to support the Queensland Government's response to climate change, climate variability and climate extremes. Its research is undertaken through internal research projects as well as in partnership with a range of national and international groups. Other similar initiatives include the Indian Ocean Climate

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Initiative, the South East Australian Climate Initiative and the Climate Futures for Tasmania project.

State and territory governments also have a number of initiatives in place to provide general information to local governments and communities about the potential impacts of climate change and how to adapt to these impacts. In many cases, these initiatives are part of state or territory general adaptation responses and may involve vulnerability assessments, reports detailing regional climate change impacts, or action plans on adaptation.

As part of their role in working with other levels of government, state and territory governments provide information to local governments to help them identify and manage their climate change risks (annex). Such guidance can be in the form of vulnerability assessments, published reports and guidance manuals. For example, the NSW Government has published a guide to climate change risk assessment for local governments which aims to support councils undertaking climate change risk assessments and generate information to develop adaptation strategies.

Other information provision initiatives examine the impacts of climate change on particular areas such as health, agriculture and the natural environment, and inform government bodies on potential adaptation responses that can be undertaken. Western Australia's Climate Change Response Strategy (focusing on the agricultural sector) and the Victorian Climate Change Strategy for Fisheries and Aquaculture 2008–2012 are two examples of such initiatives.

### *Environmental protection*

In addition to Acts of legislation which protect and manage natural systems and wildlife, state and territory governments have also released a number of policy documents setting out actions and commitments to help manage the natural environment in a changing climate.

These government initiatives focus on areas such as ecosystems and species, and natural resource management. For example, the NSW Biodiversity and Climate Change Adaptation Framework (established under the 2005 Greenhouse Plan) and the SA Government's Regional Climate Change Decision Framework for Natural Resource Management were both implemented to identify natural resource systems vulnerable to climate change and guide responses to climate change.

Other initiatives relate to natural landmarks and coastal environments. One example is Queensland's Reef Water Quality Protection Plan which was endorsed in 2003 and builds on existing government and community initiatives to improve water

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quality, including the Australian Government's Reef Rescue program. The plan outlines a number of actions to improve water quality in the Great Barrier Reef and reduce contaminants in runoff from land, so as to increase the Reef's resilience to climate change related impacts. Another example is the SA Government's Living Coast Strategy which outlines a range of initiatives and programs to manage and protect the state's coastal zones, estuaries and marine ecosystems (Department for Environment and Heritage 2004).

### *Planning*

State and territory government climate change strategies often highlight the importance of taking into account the predicted impacts of climate change when making planning decisions. These decisions can relate to land-use planning, refurbishment of key infrastructure, and may call for changes to reflect climate change risks.

Most planning systems have a number of elements, including planning Acts and regulations, and state- or territory-wide planning policies that cover specific matters (such as coastal management). However, there is no uniform approach across Australia's states and territories regarding the use of planning systems to adapt to climate change. In many cases, planning frameworks explicitly require or recommend that climate change be taken into account in planning decisions (although to date this has primarily related to sea-level rise in coastal areas). In other jurisdictions, planning frameworks provide inherent flexibility that enables decision makers to consider a range of factors in planning decisions, including climate change, but without imposing any explicit requirement to do so (Maddocks 2011) (chapter 9).

Some states and territories have implemented strategic urban-planning initiatives that take into account potential climate change impacts. In general, these initiatives recommend that new urban and infrastructure development take into account long-term climate change objectives. For example, the Metropolitan Plan for Sydney 2036 identifies several options for adaptation policy, including the incorporation of adaptation options into building standards, increasing green cover in urban areas, and putting in place guidelines for development in urban centres that address risks posed by climate change (NSW Government 2010b). A further example is the 30-Year Plan for Greater Adelaide which identifies a number of measures to deal with the long-term impacts of climate change, through energy-efficient building design, the protection of coastal communities and reduced vulnerability of critical infrastructure (Government of South Australia, sub. DR88).

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## *Coastal planning*

In light of the expected rise in sea levels, coastal planning frameworks in most states and territories have been updated to explicitly address rising sea levels and other potential impacts of climate change (chapter 9). In particular, many states have adopted ‘sea-level rise benchmarks’ that allow planning and development assessment decisions to be based on projections of future sea-level rise. These benchmarks are generally set as the projected rise in the average sea level in 2100 above the level in 1990, with the exception of Western Australia where the base year is 2010. The 2100 benchmarks range from 80 cm in Queensland (Queensland DERM 2012) to 100 cm in South Australia (Coast Protection Board 2004). (Tasmania and the Northern Territory do not currently have formal sea-level rise benchmarks.)

Almost all states have coastal strategies in place that implement these sea-level rise benchmarks. For example, these benchmarks are applied in Western Australia (in the State Coastal Planning Policy) when specifying the minimum distance from the coastline for new buildings and infrastructure, and in Queensland (in the Queensland Coastal Plan) when identifying coastal hazard areas — places that may be affected by climate change by 2100, including from sea-level rise and cyclones. In South Australia, new developments can only be approved if they are deemed to be safe against a 30 cm rise in sea levels, and if they can be protected by practical measures against a further 70 cm rise in sea levels by 2100 (Coast Protection Board 2004).

Some states also have separate initiatives that provide information to the government and the community about the vulnerability of the coast to sea-level rise and develop guidelines for local authorities and communities to manage coastal hazards. Examples of such initiatives are Tasmania’s Coastal Works Manual and Victoria’s Future Coasts Program (annex).

## *Water*

To address the potential impacts of climate change on water availability, a number of states and territories have incorporated climate change risks in their water planning initiatives and identified the water sector as a priority area for adaptation action. Initiatives include:

- Water for Good guides water supply and use in South Australia to 2050. The plan takes into account the likely effects of climate change such as more pronounced dry weather conditions and a significant reduction in flows into the Murray River (SA Government 2010b)

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- the NSW Government's 2010 Metropolitan Water Plan outlines a range of measures that aim to increase water security for the greater Sydney region. It focuses on dams, recycling, desalination and water efficiency. Some key initiatives of the Plan are to support climate change research, focusing on climate modelling with extended drought periods, and take into account climate predictions when considering water supply augmentation options (NSW Government 2010a)
  - Sydney Water's Climate Change Adaptation Program examines how climate change will affect Sydney Water's infrastructure, operations, and customers. The program has three key themes: understanding the vulnerability of Sydney Water to the impacts of climate change; assessing existing resilience to natural hazards and system failures and identifying potential adaptation responses; and embedding climate change adaptation into existing business practices and processes (Sydney Water 2010).

### *Emergency management*

A number of state and territory governments have incorporated emergency management considerations into their general climate change adaptation strategies. Government actions outlined in these strategies generally relate to providing planning and emergency advice to communities, incorporating climate change risks in local disaster response plans, putting in place community programs to increase preparedness and awareness, and promoting a cooperative approach to managing disaster risks and improving the adaptive capacity of communities.

Following recent extreme weather events such as the 2009 Victorian bushfires and the 2010–11 floods in Victoria and Queensland, state governments have commissioned a number of reviews. These reviews investigated the causes of these events as well as the adequacy of emergency management arrangements in preparing for and responding to these events. The reviews all concluded that providers of emergency services did not operate as well as they could have and made a broad range of recommendations to improve emergency management (chapter 13). In response to these reviews, state and territory governments have initiated a number of reforms to their emergency management structures. Broadly speaking, these reforms aim to improve the community's adaptive capacity by:

- clarifying roles, responsibilities and coordination arrangements in emergency management
- ensuring that providers of emergency services have the ability and the resources to operate effectively during an emergency
- improving the disaster preparedness of communities

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- engaging the community to help them recognise, understand and manage their own hazard risks.

## **B.4 Local governments**

### **Overarching approach**

Local governments around Australia are taking a number of actions in response to climate change. These generally focus on:

- reducing greenhouse gas emissions
- undertaking climate change vulnerability and risk assessments
- developing and implementing adaptation strategies to respond to the current and expected impacts of climate change.

Progress in developing adaptation strategies varies significantly across councils. While some councils have implemented a range of measures to manage and respond to climate change risks, others have done very little in this area. Constraints on resources and expertise, especially in many small, rural and remote councils, may be limiting councils' abilities to respond to climate change (chapter 8). In the case of active councils, the focus of activities has been on including climate change considerations in council operations and providing relevant information to the community to help them manage their climate change risks and adapt to climate change.

Differences in approaches across local governments often reflect differing priority areas for adaptation action — as a result of factors such as demographic composition or geographic location. For example, most coastal councils are exposed to natural hazards such as coastal inundation and sea-level rise, making coastal planning a common key area of their climate change strategies. On the other hand, inland councils may be more exposed to bushfire and/or inland flooding risk which dictates their approach to climate change adaptation.

### **General frameworks**

There is no overarching framework guiding local government in Australia when it comes to assessing and responding to the impacts of climate change. In each state and territory, the local government Act is the main statute governing councils in each jurisdiction. These Acts do not generally contain any specific climate change

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clauses directing councils on how to assess their climate change impacts and their adaptation responses.

Increasingly, councils are using a risk management approach in their activities. In 2006, the Australian Greenhouse Office (now the Department of Climate Change and Energy Efficiency) released a guide to help businesses and organisations identify risks associated with climate change impacts, focus on risks that require further attention and set up a process for ensuring that higher priority risks are managed effectively (AGO 2006). The Guide's risk management framework is consistent with the Australian and New Zealand Standard for Risk Management, AS/NZS 4360: 2004 (box B.4). A revised version of the Standard (AS/NZS ISO 31000: 2009) was released in 2009, but the overall risk management process remained unchanged. This revised standard was used to develop a new Draft Standard (DR AS 5334) by Standards Australia to identify and manage risks that settlements and infrastructure face from climate change.

#### **Box B.4 Standard for risk management**

The framework for assessing climate change risks is based on the Australian and New Zealand Standard AS/NZS 4360 and has the following steps.

1. Context — identify responsibilities of local authorities, their structure, goals and services they provide, and take into account how climate change will affect them.
2. Identify risk — consider different hazard event scenarios (including the risks associated with each scenario) for each region and/or activity while taking into account the specific characteristics of each community.
3. Analyse risks — identify sources of risks, their impacts, and the probability of these impacts occurring at some point during the lifetime of the development, asset or infrastructure.
4. Evaluate risks — assign a risk rating to each climate change impact. The risk rating ranges from almost certain to rare and depends on the consequence and likelihood of an event.
5. Treat risks — identify objectives, targets and relevant risk management and/or adaptation options.

Communication, consultation, monitoring and evaluation are required at each step of the risk assessment process — a communication plan should address climate change issues, the associated risks and how to manage them. Continuous review is also important to ensure that climate change plans remain relevant.

*Sources:* AGO (2006); DCCEE (2010b); NZ Ministry for the Environment (2008a).

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State and territory governments and local government associations also provide guidance to councils in the form of guidelines and manuals. This material primarily relates to undertaking climate change risk assessments, managing natural hazards in land-use planning systems, and planning for the health effects of heatwaves (annex).

## **Roles and responsibilities**

The SCCC considers that local governments will play an important role in adapting to the local impacts of climate change because they administer a range of government legislation and, similarly to state and territory governments, they are responsible for a wide range of services and assets (COAG Select Council on Climate Change 2012b). Several of these services and assets are exposed to the impacts of climate change.

Broadly speaking, the roles of local government include:

- managing public assets (including environmental assets) such as public roads and community recreation facilities
- providing public services such as environmental conservation
- supporting local emergency management
- implementing planning and building regulations in line with state and territory legislation (including management of the coastal zone)
- approving new developments
- providing information and guidance to communities and businesses (Australian Local Government Association, sub. 25).

In its climate change position paper and discussion document (adopted in 2010) the Australian Local Government Association also highlights the roles of local government in addressing climate change. These are consistent with the roles of local government identified by the SCCC's discussion paper (COAG Select Council on Climate Change 2012b). The Australian Local Government Association (2010) acknowledges that:

- addressing current and expected future impacts of climate change is a shared responsibility which requires the involvement of all levels of government, individuals, businesses, and the community
- local governments must prepare for climate change and, at a minimum, be able to protect their own assets and adapt to regional climate change impacts

- 
- local governments have an important role in providing guidance and education to individuals and businesses to help them understand and acknowledge their responsibilities in responding to climate change
  - delivery of local services must be improved in partnership with governments and the private sector.

## **Current policies**

Local governments have put in place a number of measures to support climate change adaptation. These are often developed by groups of councils formed to take action on climate change, or local government associations. In some cases, councils' measures may not be explicitly identified as climate change initiatives because they have interdependencies with other local or state government strategies. These relate to various areas such as sustainability, environmental conservation, asset management, land-use planning and emergency management.

### *State and territory local government associations*

All state and territory local government associations have developed climate change strategies (such as the Local Government Association of South Australia's Climate Change Strategy 2008–12) or undertaken a range of activities to help councils adapt to climate change. These activities aim to support councils to understand and plan for the impacts of climate change. Activities include:

- developing guidelines for councils to consider climate change risks in their activities and to plan appropriate responses (annex)
- organising seminars and forums on climate change issues for local governments
- publishing case studies of adaptation approaches taken by councils.

These associations often work in partnership with state and territory governments to facilitate climate change adaptation in the community. For example:

- the Municipal Association of Victoria works in partnership with the Victorian Government to implement its Future Coasts Program to inform councils and other land managers about the impacts of sea-level rise (Municipal Association of Victoria, sub. 79)
- the Local Government Association of Queensland initiated the Queensland Disaster Management Alliance in partnership with the Queensland Department of Emergency Services to support disaster management planning. It is also working in partnership with Townsville City Council and the Queensland

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Government on the Townsville Coastal Hazard Adaptation Strategy. The aim of this Strategy is to inform coastal communities of the risks that they face (Townsville City Council 2012)

- the Local Government and Shires Associations of New South Wales developed a Climate Change Action Pack in conjunction with the NSW Government in 2006. The Action Pack provides information to councils on the expected impacts of climate change and on how to improve their adaptive capacity through changes in land-use planning and infrastructure management (LGSA 2012).

### *Alliances and partnerships*

Several councils have formed regional alliances to provide information on climate change impacts and facilitate adaptation (chapter 8). Adopting a regional approach can be an efficient way for local governments to respond to climate change because it allows them to share resources and knowledge (DCCEE 2010b). Some examples are:

- greenhouse alliances — there are six greenhouse alliances in Victoria. They bring together local governments and a range of local organisations to develop and implement regional programs relating to climate change mitigation and adaptation. Some of them also undertake climate change risk assessments for their region (South East Councils Climate Change Alliance, sub. 12)
- the Sydney Coastal Councils Group — was established in 1989 and consists of 15 coastal councils in the vicinity of Sydney. Its main goal is to help member councils adopt a sustainable approach to managing the urban coastal and estuarine environment. A number of its projects relate to managing the coastal impacts of climate change (SCCG 2011)
- the National Sea Change Taskforce — was established in 2004 as a national body to represent the interests of more than 68 coastal councils. As part of the Taskforce's broader work on climate change, it released a report in 2008 highlighting the impacts of climate change for coastal communities and the extent to which councils have recognised climate change in their activities. The report also included recommendations to assist councils to plan for climate change (Gurran, Hamlin and Norman 2008).

### *Local governments*

Local governments around Australia have implemented a range of initiatives to address the challenges of climate change. These initiatives include the provision of information to communities on climate change impacts and adaptation, risk and

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vulnerability assessments from coastal or inland flooding, environmental protection and emergency management. Some examples of these initiatives are provided below.

### *Information provision*

A large number of local governments have implemented regional climate change actions plans or strategy documents which focus primarily on providing information to businesses and communities about local climate change impacts and adaptation strategies. These action plans generally involve:

- conducting climate change vulnerability assessments
- highlighting actions to reduce greenhouse gas emissions
- providing direction for addressing climate change risks
- identifying priority areas for adaptation action.

A number of capital cities have released such action plans. For example, Darwin City Council's Climate Change Action Plan 2011–2020 provides direction to the Council over the next ten years to implement a range of actions to reduce greenhouse gas emissions and address climate change impacts. The Plan lists a series of actions for the private sector and the community in a number of areas including water, land, biodiversity and energy (Darwin City Council 2011). Similar action plans have been released by the City of Melbourne and the Gold Coast City Council.

### *Infrastructure and property services*

A number of local governments have undertaken studies and vulnerability assessments to identify the risks that climate change poses to infrastructure and property in their area, and how to address those risks. For example, Port Adelaide Enfield Council (SA) has undertaken a flood risk study to identify current and predicted climate change risks to the environment and the community. The Council plans to use the study to better manage flood risks to infrastructure and property. A further example is the development of sustainable design guidelines by the City of Melville (WA) showing how the adaptive capacity of infrastructure and property can be improved through planning functions (DCCEE 2010b).

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### *Coastal planning*

Coastal councils generally have a significant role to play in coastal management since they are responsible for most of the statutory local land-use planning and also maintain infrastructure exposed to coastal hazards. As part of their general climate change strategy or in compliance with state and territory legislation, coastal councils perform a range of activities to manage the coastal zone. This includes applying sea-level rise benchmarks, undertaking vulnerability assessments, providing information to the community on potential coastal hazards and implementing measures to prevent beach and soil erosion. For example, Clarence City Council (Tasmania) published the report *Climate Change Impacts on Clarence Coastal Areas* in 2008 to address beach erosion and tidal flooding in coastal areas. The report identified a range of potential adaptive responses that can be pursued in the short, medium and long term. These include amendments to planning schemes, dune and beach rehabilitation works, and raising awareness of climate change adaptation in the community (Clarence City Council, sub. 10).

In addition to state- or territory-wide planning legislation and regulations, some coastal councils have adopted specific policies or actions to address the potential risks of climate change impacts. In Victoria, for example, member councils of the South East Councils Climate Change Alliance require that a Coastal Vulnerability Assessment be included with planning applications (South East Councils Climate Change Alliance, sub. 12).

Other councils have used planning and building regulations to require modifications that may reduce the risks from future coastal hazards. For example, Wellington Shire Council (2011) (Victoria) made an amendment to its planning scheme requiring that new dwellings or extensions to existing buildings in Port Albert have raised floors that are a certain height above the 1-in-100 year flood level. A further example is the policy of ‘planned retreat’ adopted by Byron Shire Council (NSW) (chapter 11).

### *Water planning*

Councils have implemented a number of water-planning initiatives to manage water demand and supply more effectively in a changing climate. Such initiatives include water management programs for public facilities, stormwater and wastewater recycling projects, the installation of water-saving equipment, changes to existing watering regimes and studies on water security. For example, in 2004, Ku-ring-gai Council (NSW) established a seven year stormwater re-use and water-recycling program in response to the introduction of water restrictions as well as changes in rainfall distribution and frequency. The program was designed to reduce the

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Council's reliance on potable water for its recreational facilities (DCCEE 2010b). In a further example, Central NSW Councils (2009) (an alliance of 17 councils in Central New South Wales) undertook a Water Security Study to develop water demand and supply projections for the next 50 years — factoring in potential climate change impacts — and identify options to ensure adequate water availability.

### *Emergency management*

Local governments have a wide range of responsibilities in emergency management, such as ensuring local emergency planning and preparedness measures are undertaken, coordinating local volunteer resources, and promoting community education and awareness (Australian Government 2009). Councils generally receive guidance for emergency management from legislation, overarching climate change policies at the state or territory level, or through Australian Government strategies such as the National Strategy for Disaster Resilience. However, some uncertainty about their roles and responsibilities in emergency management remains (chapter 13).

Legislation provides a framework for the management of emergencies, including the role of local governments. For example, in Victoria, the *Emergency Management Act 1986* (Vic) requires that each municipal council prepares and maintains a Municipal Emergency Management plan. These plans have special requirements for councils subject to bushfire risk.

Local governments have also implemented a range of measures relating to emergency management as part of other policies relating to climate change, environmental protection, or health. These include updating existing emergency management plans, upgrading drainage systems to cope with increased rainfall intensity and implementing mosquito-management programs in areas at risk of regular flooding (DCCEE 2010b). For example, adaptation and mitigation actions in Redland City Council's (Queensland) Climate Change and Energy Action Plan 2010-11 include reviewing and updating bushfire management plans and bushfire risk mapping every five years (Redland City Council 2010).

Recent inquiries into extreme weather events made a number of recommendations to improve coordination across councils, as well as their capacity to meet their emergency management obligations. For example, the Victorian Bushfires Royal Commission (2010) made several recommendations for councils to increase their preparedness for extreme events. These include the development of local plans for communities at risk of bushfires and compiling a list of vulnerable residents and their requirements (South East Councils Climate Change Alliance, sub. 12).

## Annex

Table B.2 **Examples of guidance material available for local governments**

<i>Government</i>	<i>General</i>	<i>Planning</i>	<i>Other</i>
Australia	<p>Climate Change Impacts and Risk Management — A Guide for Business and Government (2006)</p> <p>The Local Government Climate Change Adaptation Toolkit (2008)</p> <p>Climate Change Adaptation Actions for Local Government (2009)</p>	<p>Floodplain Management in Australia Best Practice Principles and Guidelines (2000)</p> <p>Planning Safer Communities Land Use Planning for Natural Hazards: Manual 7 (Emergency Management Australia)</p>	<p>Emergency Management Australia's Manual Series, including:</p> <ul style="list-style-type: none"> <li>• Emergency Risk Management Applications Guide: Manual 5 (2004)</li> <li>• Managing the Floodplain (Manual 19), Flood Preparedness (Manual 20), Flood Warning (Manual 21) and Flood Response (Manual 22)</li> </ul> <p>National Emergency Risk Assessment Guidelines (2010)</p>
New South Wales	<p>Guide to Climate Change Risk Assessment for NSW Local Government (2011)</p> <p>Local Government Newsletters (ongoing — provided annually or twice per year from the Office of Environment and Heritage)</p>	<p>Coastal Design Guidelines for NSW (2003)</p> <p>Coastal Planning Guidelines: Adapting to Sea Level Rise (2010)</p> <p>Settlement Planning Guidelines (2007)</p> <p>Coastline Management Manual (1990)</p> <p>Estuarine Management Manual (1992)</p> <p>Floodplain Development Manual (2005)</p> <p>Floodplain Risk Management Guideline: Practical Consideration of Climate Change (2007)</p>	<p>Coastal Dune Management: Manual of Coastal Dune Management and Rehabilitation Techniques (2001)</p> <p>Local Council Guide to Water Efficiency Plans (2010)</p> <p>Local Council Guide for Energy Management Plans (2010)</p> <p>Estuary Health Assessment Tool (2009)</p> <p>Economic Appraisal Guidelines — Guidance on Climate Change for Asset and Infrastructure Assessments (2010)</p>

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Table B.2 (continued)

<i>Government</i>	<i>General</i>	<i>Planning</i>	<i>Other</i>
Victoria	..	..	<p>Victorian Coastal Hazard Guide (2012)</p> <p>Managing Coastal Hazards and the Coastal Impacts of Climate Change (General Practice Note, 2008)</p> <p>Heatwave Planning Guide (2009)</p> <p>Emergency Relief Handbook (2011–2012)</p>
Queensland	..	<p>Guidelines for State Planning Policy 2/11 (Planning for Stronger, More Resilient Floodplains)</p> <p>Guidelines for State Planning Policy 1/03 (Mitigating the Adverse Impacts of Flood, Bushfire and Landslide 1.0)</p>	<p>Guideline Series: <i>Coastal Protection and Management Act 1995</i> (various guidelines for coastal development assessable under the Sustainable Planning Regulation 2009)</p> <p>Policy Options for Incorporating Climate Change Into the Flood Risk Management Framework in Gayndah (North Burnett Regional Council) (2010)</p> <p>Queensland Coastal Plan – Guidelines for Preparing Coastal Hazard Adaptation Strategies (2012)</p> <p>A Guide to Disaster Risk Management in Queensland Aboriginal and Torres Strait Islander Communities (2004)</p>
South Australia	..	<p>The South Australian Planning Policy Library (Version 6, September 2011) and 13 accompanying technical information sheets</p>	..

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Table B.2 (continued)

<i>Government</i>	<i>General</i>	<i>Planning</i>	<i>Other</i>
Western Australia	..	Planning guidelines and manuals (including Planning for Bushfire Protection (edition 2, 2010) and Coastal Planning and Management Manual (2005)) (Western Australian Planning Commission)  Coastal Vulnerability Assessment Western Australia Projects List	..
Tasmania	A Guide to the Resource Management and Planning System Coastal Risk Management Plan template and guidelines	..	Local government area climate profiles (Climate Futures for Tasmania Project) Tasmanian Coastal Works Manual 2010
Northern Territory	..	..	..
Local Government Associations	Climate Change Action Pack (includes best practice examples of climate change mitigation and adaptation projects) (NSW Local Government and Shires Association) Checklist for Local Government Climate Change Adaptation Planning (Western Australian Local Government Association) Adapting to Climate Change – A Queensland Local Government Guide (Local Government Association of Queensland) (2007)	..	Extreme Heat Guide for Local Government in South Australia (Local Government Association of South Australia) (2009) Incorporating Disaster Management into Local Government Corporate Planning Practices (Local Government Association of Queensland)

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Table B.2 (continued)

<i>Government</i>	<i>General</i>	<i>Planning</i>	<i>Other</i>
Local Government Association	A Guide for Councils Developing Climate Change Action Plans (Local Government Association of South Australia) (2011) Supporting Victorian Local Government Manage Climate Risks and Plan for Change (Municipal Association of Victoria) (2011) Liveable and Just Toolkit (Victorian Local Governance Association)		
Other	Local Council Risk of Liability in the Face of Climate Change — Resolving Uncertainties (Baker & McKenzie) (2012) The National Climate Change Adaptation Research Facility Local Government Portal (2012)	..	..

.. Not applicable.