



# PROSPERING IN A CHANGING CLIMATE

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Government Action Plan for the Climate Change  
Adaptation Framework in South Australia

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2012 – 2017

August 2012



**Government of South Australia**

Department of Environment,  
Water and Natural Resources

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## Summary

The release of the draft Climate Change Adaptation Framework for South Australia in December 2010 marked the first step in the delivery of the Government's climate change adaptation reform. The consultation process that followed identified broad support for the Framework and a genuine engagement with regional leaders. An effective implementation mechanism was identified as an important issue for the regions and the Government Action Plan is a key element of this requirement.

The Climate Change Adaptation Framework (the Framework) was released on 22 of August, 2012.

Current knowledge of climate change indicates that the impacts will be broad and will affect all South Australians. The responsibility for climate change adaptation will therefore involve everyone including individuals, communities, government and non-government organisations and private parties. For government, adaptation action will need to be delivered by many agencies, incorporated into a range of policy and planning processes and embedded into risk management frameworks.

The roles and responsibilities of the South Australian Government in climate change adaptation have been clarified in the Framework and in broad terms include:

1. Encouraging climate resilience and adaptive capacity including by utilising regulatory and policy instruments
2. Providing or disseminating relevant local and regional science and information
3. Managing public assets (including natural assets), infrastructure, service delivery and programs
4. Cooperating with other governments to implement the national adaptation reform.

This Government Action Plan (GAP) identifies actions to be undertaken by government agencies over the next five years to implement the Climate Change Adaptation Framework.

The Government Action Plan has been developed in consultation with the key government agencies involved and is relevant to government businesses. It addresses those issues that prevent effective adaptation both for government and the community and, where possible, the identified actions incorporate existing agency arrangements and reflect climate change adaptation priorities for each agency.

Critically, the actions under the Government Action Plan ensure that existing adaptation plans and strategies already being delivered by agencies are well aligned with the Framework and take account of new knowledge and information being developed through the regional process.

## Policy context

The Government Action Plan builds on many government policies and programs that recognise the changing climate and aim to address its impacts. Some of the key plans, strategies and institutions that contribute to providing the policy context are listed below.

- South Australia's Strategic Plan
- Climate Change Adaptation Framework
- Tackling Climate Change: SA's Greenhouse Strategy
- South Australian Planning Strategy including the 30-Year Plan for Greater Adelaide
- Strategic Infrastructure Plan for South Australia
- State Natural Resources Management Plan
- Natural Resources Management Action Plans
- Water for Good and the Stormwater Strategy
- Government Response to the State of Environment Report 2008
- DFEEST Sustainability Strategy & Action Plan 2010-12
- Skills for All
- South Australia's Social Inclusion Initiative
- Premier's Climate Change Council
- Select Committee on Climate Change

## Statewide objectives

The Framework outlines four overarching, statewide objectives for increasing South Australia's resilience<sup>1</sup> to the impacts of climate change. These objectives largely focus on building the capacity of the business sector, industry, communities, individuals and natural systems to adapt to climate change through coordinating effort, providing strategic direction, making information and decision-making tools easily accessible, engaging with local communities, improving the responsiveness of government policy, and setting science and research priorities.

The four objectives are:

- 1. Leadership and strategic direction for building a more resilient state**  
Leading SA's adaptation efforts by building partnerships, incorporating adaptation in all decision-making and actively participating in national and international activities
- 2. Policy responses that are founded on the best scientific knowledge**  
Establishing processes that deliver science of high quality and relevance to inform an adaptive management approach to building resilience and adaptive capacity
- 3. Resilient, well-functioning natural systems and sustainable, productive landscapes**  
Increasing the resilience of terrestrial, aquatic, marine ecosystems and primary production systems and linking adaptation, biodiversity conservation and sustainable landscape use
- 4. Resilient, healthy and prosperous communities**  
Building resilience and adaptive capacity by empowering communities and businesses with relevant information and decision-making tools and by helping the most vulnerable

State Government, local government, business, non-government organisations, the research sector and communities will all need to work together to achieve these objectives.

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<sup>1</sup> See Appendix 1 for a definition of resilience and adaptive capacity.

# State Government roles and responsibilities

Adaptation to climate change is a major priority for the South Australian Government. All agencies will play an important role in working with business, non-government organisations and local communities to develop statewide and regional responses. There are four broad roles for the State Government in adaptation:

1. Encouraging climate resilience and adaptive capacity including by utilising regulatory and policy instruments
2. Providing or disseminating relevant local and regional science and information
3. Managing public assets (including natural assets), infrastructure, service delivery and programs
4. Cooperating with other governments to implement the national adaptation reform.

Some of the specific roles for the State Government will include:

- raising community awareness and promoting a risk management response to climate change adaptation by government and private parties
- ensuring that regulatory and market frameworks, such as state planning, property and environmental legislation, promote effective adaptation by private parties
- partnering with the business sector and providing support for adaptation responses by business
- working with other governments to identify and implement priorities to improve adaptive capacity and strengthen climate resilience in vulnerable communities
- supporting local governments to facilitate building resilience and adaptive capacity in the local community and to ensure that policies and regulations are consistent with the State Government adaptation approaches
- managing risks and impacts to public assets (including natural assets) and infrastructure owned and managed by the Government
- managing risks from climate change impacts to services provided by the Government in such areas as emergency management, transport, land use planning, environment, health services and public housing
- undertaking actions that will not be initiated by the private or community sectors because of market failure (for example, strengthening the resilience and adaptive capacity of natural systems)
- establishing science and research priorities and conducting research in key areas of specific interest to South Australia which are not addressed in national research priorities and outcomes
- providing information and decision-making tools in a range of accessible formats that are relevant to local communities, including educating communities about how to adapt to a highly variable climate
- facilitating institutional arrangements that provide for an integrated approach to adaptation among sectors
- collaborating with other jurisdictions to develop relevant national standards, codes and approaches and implementing them through state regulatory instruments.

# Government agency roles and responsibilities

South Australian Government agencies are organised in a functional structure around the delivery of specific services and infrastructure needs and around facilitating specific industries and sectors of the economy. This enables agencies to develop the necessary skills and expertise to effectively support the Government in policy development and service delivery to the benefit of all South Australians.

While most issues require the intervention of several agencies and this is encouraged through the centralised Cabinet process, the impacts of climate change will be so broad that a highly coordinated approach will be necessary to ensure that adaptation responses are fully integrated and aware of other agency views.

Within this context, the Government Action Plan identifies three broad roles for agencies:

1. Ensuring Government activities and services are resilient to the impacts of climate change
2. Working with communities in developing adaptation options
3. Cooperating with and coordinating across agencies

These are outlined in further detail below.

## ***1. Ensuring Government activities and services are climate resilient***

The Government Action Plan recognises the current roles Government agencies play in adapting to climate change and builds on any existing sector specific climate change strategies developed by a number of agencies.

The following diagram identifies key SA Government agencies including their roles, potential climate change impacts and existing strategies and approaches to climate change.

# KEY ROLES OF GOVERNMENT AGENCIES AND POTENTIAL CLIMATE CHANGE IMPACTS

## Department of Planning, Transport and Infrastructure

### Key roles:

- Operating and maintaining public infrastructure (including the State road network, metropolitan passenger rail network, ferries and some marine facilities)
- Delivering major infrastructure projects including road, rail and public buildings
- Providing advice on land use planning, development policy and strategy, the building code and urban design and open space policy
- Operating the State's planning and development system and associated services, including building rules

### Potential climate change impacts:

- Impacts of severe weather events on key services and infrastructure including heat stress, storm damage and flooding
- Sea level rise impacts on coastal communities and infrastructure including increased risk of erosion, flooding and inundation

### Strategies:

- DPI's Climate Change Adaptation Plan
- Strategic Infrastructure Plan for South Australia
- The South Australian Planning Strategy has policies related to climate change mitigation and adaptation including appropriate location of development, construction and design techniques, energy efficient urban form, collation of services and green open spaces
- Ensure that planning strategies and development plans identify hazards exacerbated by climate change and provide mitigation policies

## Department of Further Education, Employment, Science and Technology

### Key roles:

- Building skills for workforce planning and development
- Increasing the culture of workforce development and planning in SA's businesses
- Providing vocational education and training
- Fostering innovation through science and information

### Potential climate change impacts:

- Increased need for climate change related science and knowledge
- Need to support innovation and to assist in the development of new technologies
- Realignment of training and development programs to support emerging industries

### Strategies:

- Skills for All policy
- DFEEST Sustainability Strategy and Action Plan 2010-12
- COAG Green Skills Agreement
- VET Sector Agreement

## Department of the Premier and Cabinet

### Key roles:

- Providing specialist policy advice to the Premier and Ministers
- Delivering policies and programs in areas of social inclusion, Aboriginal wellbeing, the arts, industrial relations, OH&S
- Supporting Ministers for State Development and Aboriginal Affairs and Reconciliation
- Facilitating relationships between State Government and Local Government within South Australia

### Potential climate change impacts:

- Increased hardship on the most vulnerable members of the community through extreme weather events and broader transitional impacts on the economy

### Strategies:

- Monitoring the impact of government services on the wellbeing of Aboriginal families and communities in South Australia
- Facilitating community development initiatives
- Leading and contributing to special government and strategic intervention projects

## Department for Communities and Social Inclusion

### Key roles:

- Providing individuals, families and communities in need with opportunities to improve their lives
- Assisting those in need that may be poor, vulnerable, at risk of harm or isolated and disconnected
- Delivering services in the areas of public and community housing, community care and disability services

### Potential climate change impacts:

- Impacts on vulnerable members of the community associated with severe weather events including heat waves, droughts and flooding
- Impacts on housing and service provision, including impacts on NGO's

### Strategies:

- DFC Five Year Strategic Plan, 2009-2013
- Housing Plan for South Australia

## Department of Treasury and Finance

### Key roles:

- Supporting the Government's key economic, social and financial policy outcomes by coordinating resource allocation
- Providing policy advice and financial management services including asset and liability management, taxes, insurance and superannuation
- Managing whole of government financial processes

### Potential climate change impacts:

- Negative impact of climate change on the growth of the National and State economies
- Increasing cost of providing government services and assets
- Increasing climate change impacts on the community as they are unable to adapt in the absence of a regulatory framework and adaptation information

### Strategies:

- Monitoring emerging economic impacts in consultation with other relevant agencies such as DMITRE and PIRSA

## Department for Manufacturing, Innovation, Trade, Resources and Energy

### Key roles:

- Maintaining an internationally competitive business environment and increasing international trade by increasing business investment and fostering innovative businesses
- Developing a vibrant small business sector
- Developing a highly skilled workforce and sustainable regional communities
- Supporting safe and reliable provision of energy to the community
- Facilitating and promoting the development and growth of renewable energy, mineral, petroleum and geothermal industries

### Potential climate change impacts:

- Increasing demand and cost of energy
- Increased vulnerability of regional communities due to changes in primary production systems and the need for restructuring
- Opportunities for developing new industries

### Strategies:

- Monitoring emerging economic impacts and intervening where appropriate in consultation with other agencies

## Department for Health and Ageing

### Key roles:

- Protecting and improving the health of all South Australians
- Providing public health services and health and medical research
- Improving well being, preventing illness and delivering early intervention and quality care

### Potential climate change impacts:

- Increased impacts on health from extreme weather events
- Climate change impacts on natural systems will increase prevalence of infectious diseases (including food and vector-borne), and asthma and allergic diseases (through increases in air pollution and allergens)
- Effects on mental health due to adverse community impacts (loss of livelihood, displacement and extreme events)

### Strategies:

- Strengthening the existing infectious disease surveillance systems
- Climate change related emergency management and education
- Initiation and facilitation of collaborative research into the impacts and risk factors of climate change at the state and federal level

## Department of Environment, Water and Natural Resources

### Key roles:

- Providing specialist policy advice to the Premier and Ministers
- Leading policies and programs in areas of sustainability and climate change for the South Australian Government
- Biodiversity & heritage conservation
- Management of public lands including national parks, reserves and Crown Land
- Delivery of conservation and fire management programs
- Developing policies and strategies that achieve conservation and sustainable use and management outcomes on a landscape scale
- Management of coastal issues
- Developing policy and strategies that achieve integrated coastal zone management, including coastal protection
- Ensuring sustainable and sufficient water resources for South Australia
- Securing, protecting and diversifying SA's water sources
- Improving water conservation and efficiency, and modernising the water industry
- Encouraging storm water and wastewater recycling
- Managing storm water to guard against flood impacts

### Potential climate change impacts:

- Increasing demand for solutions to climate change impacts
- Impacts on distribution and abundance of species
- Changes in reproduction timing and duration and interactions between species. Also loss of species
- Sea level rise impact on coasts
- Impacts on sustainable land use and management
- Warmer and drier climatic conditions
- Decline in rainfall and reduction in both run-off to surface water storages and recharge to aquifers
- Increase in evaporation rates driving demand
- Increased incidence of more severe rainfall events and flooding

### Strategies:

- Climate Change Adaptation Framework for South Australia
- Leading climate change adaptation reform agenda ensuring improved statewide coordination
- Reducing climate change risks for the community through information provision, research, legislation and policy
- Adaptation of existing development to coastal hazards and the impacts of climate change
- Plan for resilience in ecosystems to adapt to the impacts of climate change
- Enhancing the adaptability of the environment and natural resources to the anticipated impacts of climate change
- Using available, relevant scientific evidence to inform specific adaptation policies and strategies
- Water for Good
- Stormwater Strategy
- Water Allocation Plans via NRM Boards

## Environment Protection Authority

### Key roles:

- Protecting air and water quality and controlling pollution, waste, noise and radiation
- Influencing and regulating human activities to protect and restore the environment

### Potential climate change impacts:

- Impacts of hotter, drier weather on air quality

### Strategies:

- Provision of environmental information collected by the EPA to governments, business and the community
- Regulation of government, business and industry to ensure implementation of industry best practice

## SAFECOM

### Key roles:

- Protecting South Australians from emergency situations including fires, floods, severe weather emergencies and disasters
- Providing strategic leadership role in emergency management within the State
- Delivery of programs under the National Partnership Agreement on Natural Disaster Resilience

### Potential climate change impacts:

- Increase in the number and severity of natural disasters

### Strategies:

- Establishment of zone and emergency risk assessments to inform risk mitigation priorities
- Establishment of State Mitigation Advisory Group Climate Change Sub-Committee to facilitate integration of emergency management and climate change adaptation
- Establishment of an emergency management web portal

## Primary Industries and Regions SA

### Key roles:

- Facilitating & promoting the development and growth of primary industries (agriculture, food, wine, fisheries, aquaculture and forestry)
- Facilitating the application of innovative technologies, and providing research and development capability
- Delivering rural and remote community support services

### Potential climate change impacts:

- Reduced cropping yields
- Reduction in viticulture quality and suitability
- Forestry vulnerability to fire and lack of water
- Heat stress and reduced water allocation for livestock
- Exposure to pests and diseases

### Strategies:

- Climate Change Management Framework including Draft Action Plan

## 2. Working with communities

The Climate Change Adaptation Framework proposes a more coordinated and integrated approach to identifying and evaluating climate change risks and delivering adaptation responses in South Australia. The regional approach proposed in the Framework recognises that local knowledge is important in developing adaptation responses and that a significant proportion of adaptation responses will be delivered by those who are impacted by climate change and have therefore the most to gain from adapting.

It is not realistic to expect that governments will be in a position to protect the community from climate change and to enable Australians to maintain established lifestyles. According to Garnaut<sup>2</sup> “climate change will require adjustments to innumerable, locally-specific customs and practices over time” and “the range and scale of impacts that is likely across Australia is such that it is not feasible for governments to underwrite maintenance of established patterns of life for all people in all places”.

Governments will need to work more closely with local communities to ensure their service delivery and asset management policies are consistent with community thinking and to assist, where necessary, in developing locally relevant responses. The Framework details the responsibilities of all parties involved in climate change adaptation including responsibilities for undertaking and supporting the regional integrated vulnerability assessments.

The development of the Climate Change Adaptation Framework and the subsequent consultation process has identified several changes that government will need to make in order to fully consider regional views and provide an integrated response on community issues. Some of the early actions the South Australia Government and its agencies will need to undertake in order to successfully implement the Adaptation Framework include:

- The establishment of regional committees through agreements between key regional leaders and the Government under *the Climate Change and Greenhouse Emissions Reduction Act 2007*
- The participation of specific agencies in those regional agreements that have the greatest bearing on their agency business
- The participation of agencies in new information sharing arrangements, including a cross agency group, to ensure that an integrated and coordinated government response can be presented to communities (see next section)

Government representatives on the regional committees will assist in the exchange of information between the regions and the government. The development of adaptation plans will therefore be informed by local knowledge supported by findings of Integrated Vulnerability Assessments (IVA's) and by advice provided by relevant government agencies.

Other actions and desirable outcomes:

- Deliver adaptation responses that are cohesive, coordinated and mainstreamed in established planning, decision-making and risk management frameworks
- Recognise the interconnections between social, environmental and economic systems
- Prioritise adaptation actions through assessment of risks, costs and equity using best available science and considering uncertainty of climate change projections
- Assess climate change risks and opportunities via IVA's in the first instance
- Determine priorities and develop adaptation action plans

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<sup>2</sup> *The Garnaut Climate Change Review – Final Report, 2008.*



## Functions of Regional Steering Committees

Specific roles of the regional committees will include:

- Overall coordination of vulnerability assessments and adaptation planning
- Facilitating and directing vulnerability assessments across the relevant sectors in each of the regions
- Engaging local communities to ensure the results of the vulnerability assessments are understood
- Engaging local communities in the development of adaptation strategies and actions
- Ongoing monitoring and evaluation of the adaptation process
- Developing and enhancing adaptation methodologies and promoting opportunities and best practice in other regions

The Framework builds on existing regional processes and functions that already work well. Natural Resources Management (NRM) Boards, Regional Development Australia (RDA) Boards and Local Governments already consider issues within their areas of responsibility and their community. The establishment of regional communities creates a mechanism for regional leaders to work together, set a vision and lead their region to a prosperous future. The membership of regional committees will comprise leaders of relevant regional organisations including Local Governments, NRM Boards, RDA's and key industry and community sectors.

The establishment of regional committees does not create additional authority for decision making. Rather, community and regional leaders establish a forum where they are able to consider the priority areas for adaptation action in the region and plan coordinated responses. However, the delivery of these actions remains the responsibility of regional leaders within existing organisations. All regional authorities will maintain and continue to exercise their existing roles and responsibilities – but they will do so in the context of discussions and agreements made with other leaders in their region.

Importantly, discussions and agreements made by the regional committees will need to attempt to balance the varying interests of parties within the region and, through evidence based assessments, achieve trade-offs between the various pressures within the region.

### ***3. Cooperating with and coordinating across Government***

New arrangements will need to be put in place to ensure that the plans and concerns of regional committees are capable of informing government policy, and government responses.

Plans generated through regional agreements will be provided to Government for their consideration. Government would then be required to provide a response, in line with its roles and responsibilities identified in the Framework, and this would be coordinated through a cross agency group established to deal with climate change matters. The Government's requirement to respond to regional concerns may be embodied in legislation or administratively.

The establishment of the cross agency group does not create additional authority for decision making within Government. The group is a forum for discussion, exchange of information and the development of whole-of-government positions on climate change issues. It will be important for the group to attempt to achieve a consensus view of climate change issues between the various government agencies and to balance their respective priorities. Government approval processes within agencies will continue to apply to actions recommended by the group.

The group's membership will include relevant agencies responsible for climate change adaptation actions.

Other committees and processes will likely be established to support decision making and cooperation at the officer/practitioner level.

# Strategies and actions

The roles of State Government and individual agencies discussed above are articulated as specific actions under each of the objectives of the Framework.

## **Objective 1      *Leadership and strategic direction for building a more resilient state***

While action will need to occur at a range of levels, it is important for some responses to be coordinated at the whole-of-State level to reduce duplication, minimise costs, maximise opportunities for sharing information and to ensure that adaptation responses are effective. The State Government has a clear leadership role in this regard.

Mechanisms and processes that will build resilience must be embedded into public and private sector decision-making and risk assessment. This will require the right policy settings and the creation of incentives to encourage action. The majority of adaptation responses will need to occur in the private sector, so it will therefore be crucial for Government to form strong partnerships with business.

It is also important for South Australia to continue to show leadership on climate change by actively participating in, and seeking to influence, national adaptation policy and programs, staying in touch with international developments, and making the most of commercial opportunities to export skills and knowledge.

Partners: State Government, local government, key business and industry groups, Regional NRM Boards, Regional Development Boards

### **Strategy 1.1      *Lead South Australia's adaptation efforts***

Action 1.1.1      **Establish Regional Agreements** under *the Climate Change and Greenhouse Emissions Reduction Act 2007* between the State Government and regional organisations including local governments, natural resources management and regional development boards and local leaders

*Lead: Sustainability and Climate Change, Department of Environment, Water and Natural Resources (DEWNR)*

Action 1.1.2      **Work with regional stakeholders to establish Regional Committees** that oversee implementation of the Adaptation Framework; coordinate funding submissions; oversee regional governance arrangements and the development of regional adaptation strategies and plans and engage with key stakeholders and lead the development of locally relevant adaptation responses. The Regional Committees will be established under the Regional Agreements

*Lead: Sustainability and Climate Change, DEWNR*

Action 1.1.3      **Conduct Regional Integrated Vulnerability Assessments** overseen by Regional Committees to assess the level of risk to business, communities and the environment

*Lead: Regional partners*

Action 1.1.4      **Establish a cross agency group** to deal with adaptation issues affecting more than one government agency, this includes issues that are identified through Regional Committees and Integrated Vulnerability Assessments and which fall within the State Government's responsibilities

*Lead: Sustainability and Climate Change, DEWNR*

- Action 1.1.5 **Support the cross agency group** by committing one senior executive and providing on-going support to its work programme  
*Lead: Sustainability and Climate Change, DEWNR supported by relevant agencies*
- Action 1.1.6 **Support Regional Committees** by committing one senior executive per region in geographic areas of particular relevance to the business of the agency  
*Lead: Sustainability and Climate Change, DEWNR supported by relevant agencies*
- Action 1.1.7 **Prepare whole-of-government responses** to climate change adaptation plans provided to Government by regional committees  
*Lead: Sustainability and Climate Change, DEWNR supported by relevant agencies*
- Action 1.1.8 **Hold an annual adaptation forum** to provide the opportunity for regional and state organisations to share information and experiences and to ensure common approaches and methodologies  
*Lead: Sustainability and Climate Change, DEWNR*
- Action 1.1.9 **Bring together a community of climate change adaptation practitioners** within the State and Local Government and academia to encourage the sharing of adaptation information and ideas by providing regular meeting opportunities and utilising appropriate communications technologies  
*Lead: Sustainability and Climate Change, DEWNR*

**Strategy 1.2** *Build partnerships with the business community and non-government organisations*

- Action 1.2.1 **Engage with key business and non-government organisations** to identify key roles and responsibilities and adaptation activities  
*Lead agencies: Sustainability and Climate Change, DEWNR in consultation with DMITRE and DPI*

**Strategy 1.3** *Incorporate adaptation into all decision-making*

- Action 1.3.1 **At the expiration of this Government Action Plan, evaluate the effectiveness of agency responses** to adaptation issues identified at the regional level  
*Lead: Sustainability and Climate Change, DEWNR*
- Action 1.3.2 **Assess the degree to which climate change risk management is incorporated** into existing government and business risk management frameworks  
*Lead: Sustainability and Climate Change, DEWNR*
- Action 1.3.3 **Assist in the development of a decision framework** to assist in prioritising climate change adaptation action by government  
*Lead: Sustainability and Climate Change, DEWNR*

**Strategy 1.4** *Actively participate in national initiatives*

- Action 1.4.1 **Contribute to national climate change adaptation policy developments**  
*Lead: Sustainability and Climate Change, DEWNR*

## **Objective 2      Policy responses that are founded on the best scientific knowledge**

Accurate, relevant and up-to-date science will underpin successful responses to build resilience. South Australia has excellent adaptation research and climate science capacity. It is vital that our efforts are coordinated, prioritised, and informed by the latest national and international developments. It is also important to acknowledge that there will always be uncertainties about the extent and impacts of climate change. To this end we will need to take an adaptive management approach that will allow sufficient flexibility to change our responses as new information arises. This will rely on continuously improving our knowledge and monitoring the success of our responses. Community science programs, such as Climate Watch<sup>3</sup>, will also have an important role to play.

It is also vital that we have the right datasets to inform our responses. As yet, we do not have some of the underlying datasets that are essential to create the knowledge we need to take action. We will need to make sure that local communities and businesses have access to, and understand, the science that they need to make effective decisions.

Finally, effective responses to climate change will require changes in the behaviours of individuals and communities. Understanding the social dimensions of adaptation will be critical to ensuring that the population has the knowledge, perceptions and emotional responses that mitigate climate change risks at an optimum level.

Partners: State Government agencies, Premier's Science and Industry Council, the academic sector and the science and technology industry

### **Strategy 2.1      Establish a comprehensive adaptation research agenda for South Australia**

Action 2.1.1      **Work with research institutions to develop a strategic plan** to guide adaptation science and research efforts in South Australia, in particular to provide clear direction for setting adaptation priorities, obtaining funding and identifying partnership opportunities

*Lead: Sustainability and Climate Change, DEWNR in partnership with the Premier's Science and Industry Council and consultation with research providers, industry and the community*

Action 2.1.2      **Lobby for and support national research on key adaptation issues** to promote information sharing, reduce duplication of effort and contribute to building national research capacity that will benefit South Australia

*Lead: Sustainability and Climate Change, DEWNR in partnership with the Premier's Science and Industry Council*

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<sup>3</sup> [www.climatewatch.org.au](http://www.climatewatch.org.au)

**Strategy 2.2** *Use up-to-date, high quality and relevant science to inform an adaptive management approach to building resilience and adaptive capacity*

Action 2.2.1 **Develop and implement adaptive management criteria** to guide adaptation in each of the sectors

*Lead: Regional Committees supported by peak bodies and relevant agencies*

Action 2.2.2 **Establish monitoring and evaluation programs** to inform the adaptive management approach

*Lead: Regional Committees supported by peak bodies and relevant agencies*

**Strategy 2.3** *Identify, create and share the datasets and knowledge to underpin successful responses*

Action 2.3.1 **Work with other agencies to review and consolidate existing datasets** relevant to adaptation across all disciplines

*Lead: Sustainability and Climate Change, DEWNR in partnership with relevant agencies*

Action 2.3.2 Work with other agencies to **integrate essential datasets** to generate comprehensive and confident models of the hazards and risks to climate change to better inform adaptation responses

*Lead: Sustainability and Climate Change, DEWNR in partnership with relevant agencies*

### ***Objective 3      Resilient, well functioning natural systems and sustainable, productive landscapes***

Our health, well-being and economic prosperity depend upon healthy, natural systems and the services they provide such as clean water, climate regulation, healthy soils, pollination and nutrient recycling. Many natural systems in South Australia are already degraded. To increase their resilience we will need to adjust our management objectives for biodiversity conservation to deal with the complexities created by climate change. We will need to increase ecosystem resilience and connectivity across the landscape through restoration and rehabilitation; manage major threats to biodiversity, many of which are likely to worsen under climate change; and ensure that formal protected areas conserve as many different ecosystems and habitats as possible.

Climate related impacts such as pests, weeds, soil erosion, water scarcity, loss of biodiversity, and extreme weather events threaten productive landscapes and primary industries that underpin the State's prosperity. Primary producers need support to identify opportunities for diversification and the uptake of new technologies and management regimes. Farm management systems will need to be altered to incorporate measures that will increase resilience, and integrated approaches will be needed to address the impacts of fire, pests, weeds and diseases, which are expected to increase under climate change.

With flexible and integrated approaches to both mitigation and adaptation, there will be many opportunities to develop solutions that deliver positive mitigation and adaptation outcomes and enhance the sustainable use of natural resources and biodiversity values. We must ensure that we make the most of these opportunities.

Partners: State Government, local government, Regional NRM Boards, South Australian Farmers Federation, Conservation Council of South Australia

#### ***Strategy 3.1      Increase the resilience of South Australia's terrestrial, aquatic and marine biodiversity***

Action 3.1.1      **Using findings of the Integrated Vulnerability Assessments and regional feedback assess and address climate change vulnerabilities** of the natural environment through natural resources management and nature, coast and marine conservation

*Lead: DEWNR*

Action 3.1.2      **Develop and implement strategies informed by Integrated Vulnerability Assessments (IVA's) and community engagement processes** to increase the resilience of terrestrial, aquatic and marine ecosystems

*Lead: DEWNR*

Action 3.1.3      **Undertake a stocktake of primary production and biodiversity conservation policies** to ensure consistency and incorporate existing activities into a broader climate change adaptation agenda

*Lead: Jointly DEWNR and PIRSA*

**Strategy 3.2**      *Increase the resilience of primary production systems*

- Action 3.2.1      **Using findings of the IVA's and regional feedback assist primary producers to address climate change vulnerabilities**  
*Lead: PIRSA*
- Action 3.2.2      **Informed by IVA's assist primary producers and industries reliant on natural resources to identify opportunities for diversification and economic re-structuring**  
*Lead: PIRSA supported by DEWNR*
- Action 3.2.3      **Collaborate in scientific and technical research** including IVA's to increase understanding of climate processes and impacts on primary industries  
*Lead: PIRSA supported by DEWNR*
- Action 3.2.4      **Communicate understanding of climate science, risks and opportunities of climate change** on primary industries to government, communities and industry  
*Lead: PIRSA supported by DEWNR*
- Action 3.2.5      **Based on IVA's and latest available science identify best practice technologies** to improve productivity of primary production systems  
*Lead: PIRSA supported by DEWNR*

**Strategy 3.3**      *Strengthen policy links to achieve mutual benefits for climate change, biodiversity conservation and the sustainable use of landscapes and water*

- Action 3.3.1      **Review and amend primary industries, biodiversity conservation, water management and planning policies** to ensure consistency in light of findings of the Regional Integrated Vulnerability Assessments  
*Lead: Jointly DEWNR, PIRSA, DPTI*
- Action 3.3.2      **Identify and put in place strategies to improve the interface and consistency between land use planning and NRM systems** in the context of the issues identified in IVA's  
*Lead: DPTI supported by DEWNR and PIRSA*



## ***Objective 4      Resilient, healthy and prosperous communities***

The impacts of climate change affect the economy and the way that people lead their everyday lives. Building resilient, healthy and prosperous communities will involve spreading risk and maintaining economic and social diversity. It involves seizing opportunities, and promoting and recognising successes. It requires the 'mainstreaming' of climate change considerations into planning and policy, creating flexible decision-making frameworks; assessing the vulnerability of sectors and communities; and empowering people to take action by providing accessible information and decision-making tools. It will also require us to pay attention to the needs of the most vulnerable members of society, including the elderly, people living with disability, young children, those living in remote or highly vulnerable coastal communities, those on low incomes who are least economically equipped to move or adapt to their living conditions, and also to those businesses and sectors that have the potential to prosper as a consequence of adaptation.

Creating resilient human systems will also mean paying attention to increasing the resilience of natural systems because healthy, diverse ecosystems underpin successful and prosperous communities.

Although a number of key government agencies already deliver effective climate change adaptation responses as part of existing business strategies, the Climate Change Adaptation Framework and the Government Action Plan provide a focus on climate change as a broader issue for South Australia and therefore aim to deliver climate change responses equitably across the community, business and government operations.

While everyone will need to adapt and the Government's role is generally focussed on providing leadership, encouragement and public-good adaptation information there are many established functions forming part of the Government's service delivery to the community that include more direct involvement, often on a fee for service basis. This includes, for example, assistance and direct service delivery in the areas of primary industries, natural resources management and health. Consultation with government agencies on the Government Action Plan and with regional leaders on the draft Climate Change Adaptation Framework has identified several actions to be delivered by government agencies over the life of this plan.

Establishing regional committees to lead the development of relevant adaptation responses, informed by regional IVA's, are critical actions that ensure a comprehensive assessment of climate change impacts in the regions. It also provides for effective dissemination and use of this information throughout the community and governments. Other actions relate to specific agency functions and provide information on climate change impacts or deliver specific responses that offset these impacts.

Partners: State Government, local government, industry, business, communities and individuals

## **Strategy 4.1**

### **Build the resilience and adaptive capacity of businesses and communities at the regional and local levels**

- Action 4.1.1 **Engage businesses and communities** in developing adaptation strategies and action plans based on the Integrated Vulnerability Assessments  
*Lead: Regional Committees supported by relevant government agencies*
- Use findings of the Integrated Vulnerability Assessments and regional feedback to assess and address climate change vulnerabilities in South Australia with particular reference to:**
- Action 4.1.2 the transport system including key transport infrastructure such as roads, rail and regional air strips and public transport services  
*Lead: DPTI*
- Action 4.1.3 the energy system to ensure a safe and reliable supply of energy to all South Australians including supply of electricity, natural gas and transport fuels  
*Lead: DMITRE*
- Action 4.1.4 the South Australian business and climate change impacts on competitiveness including the economic sustainability of regional communities  
*Lead: DMITRE*
- Action 4.1.5 the small business sector by identifying, promoting and fostering opportunities for the growth of innovative business  
*Lead: DMITRE*
- Action 4.1.6 the local economy through the provision of advice on, and coordination of, resource allocation in line with the Government's economic, social and financial policy outcomes  
*Lead: DTF*
- Action 4.1.7 the community by ensuring that the planning system minimises climate change impacts in new developments  
*Lead: DPTI*
- Action 4.1.8 emergency management by protecting South Australians from emergency situations including fires, floods, extreme weather events  
*Lead: Hazard Leaders and SAFECOM*
- Action 4.1.9 the health system by improving wellbeing and preventing illness of the population  
*Lead: SA HEALTH*
- Action 4.1.10 the environment and natural resources, including terrestrial, marine and aquatic systems  
*Lead: DEWNR*
- Action 4.1.11 future workforce planning and skills building in support of emerging industries  
*Lead: DFFEST*
- Action 4.1.12 the impacts of climate change on air quality by amending existing pollution reduction measures to ensure South Australia achieves national air quality standards  
*Lead: EPA*
- Action 4.1.13 the availability of water to meet current and projected demand  
*Lead: DEWNR*

**Strategy 4.2** *Create climate resilient urban areas and address the needs of the most vulnerable members of the community*

Use Integrated Vulnerability Assessments (IVA's) and regional feedback to assess and address climate change impacts:

Action 4.2.1 on South Australia's urban areas by reviewing planning strategies, the building code and urban design and open space policy

*Lead: DPTI*

Action 4.2.2 to support vulnerable members of the community including vulnerable Aboriginal people

*Lead: DPC, DCSI*

Action 4.2.3 **Consistent with the Climate Change Adaptation Framework, incorporate the regional approach** in dealings with local government

*Lead: Office of State/Local Government Relations, DPC*

**Strategy 4.3** *Empower people to take action through making relevant information and decision-making tools easily accessible*

Action 4.3.1 **Develop a SA Climate Adaptation Web Portal** to provide a 'one-stop-shop' website where people can get access to decision-making tools, plausible climate projections, likely impacts and adaptation responses, education resources and community support programs

*Lead: Sustainability and Climate Change, DEWNR*

**Strategy 4.4** *Increase community awareness and understanding of the opportunities for adaptation*

Action 4.4.1 **In cooperation with government agencies and regional partners identify and promote adaptation opportunities in South Australia**

*Lead: Sustainability and Climate Change, DEWNR*

**Strategy 4.5** *Increase community resilience during times of crisis*

Action 4.5.1 **Consider findings of IVA's and regional feedback to assess the preparedness of relief and recovery arrangements** to deal with emergencies and disasters

*Lead: Hazard Leaders and the State Recovery Office*

# Acronyms

**CAF** – Council for the Australian Federation

**COAG** – Council of Australian Governments

**DCSI** – Department for Communities and Social Inclusion

**DECD** – Department for Education and Child Development

**DEWNR** – Department of Environment, Water and Natural Resources

**DFEEST** – Department of Further Education, Employment, Science and Technology

**DHA** – Department for Health and Ageing

**DMITRE** – Department for Manufacturing, Innovation, Trade, Resources and Energy

**DPC** – Department of the Premier and Cabinet

**DPTI** – Department of Planning, Transport and Infrastructure

**DTF** – Department of Treasury and Finance

**IVA** – Integrated Vulnerability Assessment

**PIRSA** – Primary Industries and Regions SA

# APPENDIX 1 Building resilience and adaptive capacity

Building the resilience of social, economic and natural systems so that they can withstand climatic change without collapsing will be essential to successful adaptation. The alternative to a resilient system is a vulnerable or fragile system, where even small changes can have disastrous outcomes.

We are part of the natural world and depend on the services provided by nature for survival. The intricate connections between people and the environment mean that we will need to build resilience into both human and natural systems at the same time.

Resilience has three defining features<sup>4</sup>:

- The amount of change a system can undergo and still retain the same controls on function and structure.
- The degree to which the system is capable of self-organisation.
- The ability to build and increase the capacity for learning and adaptation.

In the context of climate change, a more resilient system has the ability to withstand higher threshold limits associated with such events as droughts, heat waves and floods.

Some of the factors that can decrease the resilience of our natural, social and economic systems include:

- loss of biodiversity
- toxic pollution
- inflexible, closed institutions
- perverse subsidies that encourage the unsustainable use of resources
- a focus on production and increased efficiencies that lead to a loss of redundancy.

The key to building resilience in both human and natural systems is maintaining diversity and spreading risk. Adaptive management processes can also increase resilience.

Some of the actions that will increase the resilience of human and natural systems include:

- stopping practices that put people at high risk
- improved understanding and awareness of climate change and the need to adapt
- incorporating climate change information into planning, practice, and decision-making
- implementing measures that proactively reduce climate impacts
- developing informed risk-spreading practices.

Improving adaptive capacity creates and expands our options for dealing with climate change, and allows us to respond quickly and effectively to climate change impacts that go beyond what existing systems can reasonably withstand.

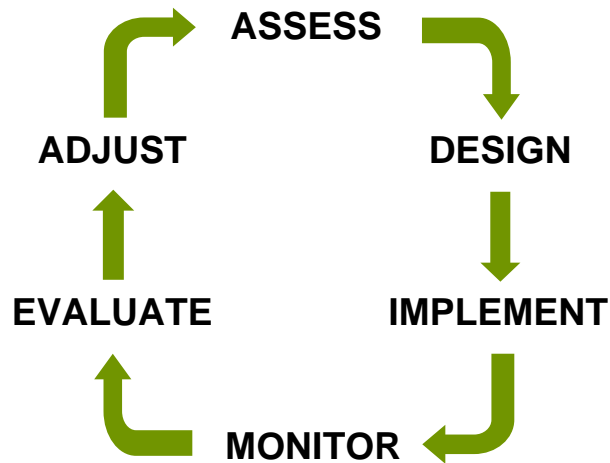
Adaptive capacity is about building our understanding of the interrelationships and feedbacks between the social, economic and ecological systems across the time and space scales that are appropriate to climate change impacts. Understanding these interrelationships will allow us to prepare for any necessary changes in our behaviours in the face of significant changes to our climate.

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<sup>4</sup> <http://www.resalliance.org>

The six stages of adaptive management:

1. Assess the problem: determine management objectives, indicators of success, options for action, assumptions, key uncertainties and alternative hypotheses.
2. Design actions to test hypotheses; predict outcomes based on current knowledge.
3. Implement the actions as designed.
4. Monitor implementation and effectiveness: are there any deviations from the design, and were the objectives achieved.
5. Evaluate the results: which actions were most effective, and which hypotheses should be accepted or rejected.
6. Adjust and revise uncertainties and hypotheses and repeat; share what has been learned.



Source: ESSA Technologies Limited <http://www.essa.com/services/am/index.htm>