

## Policy and regulatory frameworks for adaptation



### Key Points

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The primary roles of policy and regulation in adaptation are to enable decision-makers at all levels of government and in the private sector to effectively adapt the nation to climate change and to ensure that policy and regulatory frameworks do not impede adaptation. Although there are very good reasons why the adaptation response should begin now, as has been outlined in all NCCARF's Policy Guidance Briefs, real action to address the adaptation challenge is rare and slow.

Government, and the community at large, need to be clear why there is a need for adaptation now, to address an issue that apparently will not cause major effects for several decades. Communities and individuals need to be incentivised by government to evaluate their risk and to plan to build resilience against natural hazards and climate change. Policies need to be in place to promote betterment when rebuilding following extreme events.

Adaptation is often siloed within a single department, and neglected elsewhere within government. Adaptation is expected to happen through the provision of guidelines and recommendations, and rarely through the force of law.

Autonomous adaptation is already taking place at the community level, and it is a role of government to facilitate this process, and to ensure that it is not maladaptive. There is a need for clear definition of responsibilities amongst the three tiers of government. Communities need to be clear and certain about what governments can, and cannot do with respect to emergency management and adaptation. Communities need to be delivered strong ownership of the vision and the means to achieve it, making it more likely that adaptation goals will be reached.

The Australian Government has the opportunity to show leadership in adaptation by ensuring that all responsibilities and functions are exercised with consideration of the effects of climate change. This can influence broader sections of society through procurement, grant provision and investment.

Markets and market forces have proved capable of playing a strong role in encouraging effective adaptive behaviour. However, there is a risk that they will lead to inequitable outcomes in smaller, less mature markets. Policy should work to establish equitable and efficient markets that lead to positive adaptation outcomes.



NCCARF's evidence-based Policy Guidance Briefs address key challenges to effectively adapting Australia to a variable and changing climate. They provide high-level policy advice designed for use by policy makers at Commonwealth and State level. This Guidance Brief deals with policy and regulatory frameworks for adaptation to climate change.

The Australian government is responsible for setting policy and regulation for climate change at the national level. Institutions responsible for action on climate change, whether local governments or private enterprises, have to work within the policy and regulatory frameworks created by national and, to a lesser extent, state and territory governments in Australia. These frameworks should be fit-for-purpose, equipping those responsible for action with the authority, tools and resources to act.

## 1 The climate context

The present-day climate of Australia is highly variable from year to year, with extremes such as droughts and floods a commonplace feature. The Australian policy and regulatory environment is adapted to this regime, and is constantly adjusting to seek the best possible response to extremes through initiatives such as Caring for our Country and the National Drought Program Reform.

Under climate change, even greater responsiveness and flexibility will be required. Some changes to our climate can already be observed: annual mean temperatures have increased by 0.75°C since 1910, and the frequency of extreme (record) hot days has been more than double the frequency of extreme cold days during the past ten years (CSIRO and BOM, 2012). Rainfall in the south-west of Western Australia has reduced by around 15% since the mid-1970s (CSIRO, 2009).

Projected future changes to the Australian climate include (Whetton, 2011):

- Annual average warming by 2030 (above 1990 temperatures) of about 1.0°C across Australia, with warming of 0.7 to 0.9°C in coastal areas and 1 to 1.2°C inland.
- A drier climate in southern areas of Australia, especially in winter, and in southern and eastern areas in spring.
- Sea level around Australia is expected to rise. The most recent estimate from the Intergovernmental Panel on Climate Change (in the 2007 Fourth Assessment) is for an increase of 18-59 cm by 2090-99 compared to 1990. More recently, Church et al. (2011) taking into account 'rapid ice flow', estimate a rise of 80 cm by 2100 compared to 1990.

With respect to extremes, more frequent and hotter heatwaves are very likely. Although there are no clear indications of future trends in intense rainfall, drought frequency is expected to increase, particularly in southern and south-western Australia. An increase in fire-weather risk is likely.

## 2 Current effects, impacts and issues

Governance and regulation in the context of the present-day climate are mainly related to weather extremes. There is continual adjustment of governance and regulatory frameworks in response to the incidence of extremes, in efforts to create a nation well-adapted to present-day climate variability. The challenge is to achieve a balance – seeking to relieve hardship whilst not perpetuating poorly-adapted social and economic systems, seeking to promote business opportunities while ensuring that existing market failures are addressed and new ones not created.

Some examples include:

**Drought:** Australia has a long history of drought, and of measures implemented to address drought. Some examples are:

- *Infrastructure solutions:* e.g. the move to build desalination plants for most capital cities in response to the Millennium Drought of 2001 - 2009.
- *Knowledge solutions:* e.g. increased investment in climate science in a bid to improve seasonal forecasting of El Niño events, often associated with drought in Eastern Australia.
- *Legislation and institutional solutions:* e.g. the signing of the National Water Initiative in 2004, at the height of the Millennium Drought.



## Current effects, impacts and issues ... continued

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- **Regulatory solutions:** The Murray-Darling Basin Plan is an example of regulation to manage water in one of the world's largest catchments by partitioning available water amongst different use categories, with the goal of ensuring environmental sustainability.
- **Social solutions:** e.g. the Australian Government has the power to declare Exceptional Circumstances (EC) events, where such an event must not have occurred more than once on average in every 20 to 25 years and must be of significant scale. Once an EC event is declared, assistance is available for up to two years. NCCARF has published a report examining drought impacts in small agricultural towns and the role of government interventions (Kiem et al., 2011).

**Floods:** Periodic very severe flooding in Australia is usually followed by an inquiry, especially where there has been loss of life or extensive property damage. The Queensland Floods Commission of Inquiry was set up following widespread and severe flooding in 2010/11. NCCARF has published a research report looking at Australia flood inquiries in comparison with inquiries in The Netherlands, China and the USA (Wenger et al., 2013).

**Bushfire:** An inquiry generally follows major bushfires, especially where deaths have occurred. The 2003 Canberra fire was followed by the McLeod Inquiry into the operational response, a Coroner's Inquiry into the four deaths, and a House of Representatives Select Committee. The Black Saturday fire (in 2009) was followed by a Royal Commission. Generally, the findings of these inquiries will lead to changes where feasible, especially in the operations of emergency services. However, structural changes may be limited by cost. Thus, the Royal Commission recommendations on burying above-ground power lines and buy-back of vulnerable residences were not implemented by the state government of the time.

Bushfires may trigger a change to building regulations. Following the Black Saturday bushfire, new regulations for fire-prone regions of Victoria were fast tracked by Standards Australia, and new guidelines and standards for bushfire planning and building were brought in by the state government.

**Cyclones:** Severe damaging cyclones occur rarely in Northern Australia, but when they do occur the damage is great, especially when considered as a proportion of the economy of the region. Cyclone Yasi in 2011 caused an estimated \$3.6 billion of damage, and Cyclone Larry in 2006 caused \$1.5 billion of damage.

Cyclone Tracy hit Darwin at Christmas 1974 and destroyed 80% of housing. It led to significant changes in building regulations and Australia now has some of the most stringent building codes for cyclone-exposed areas in the world. NCCARF has published a research report looking at institutional responses to Cyclone Tracy and their efficacy (Mason and Haynes, 2010).

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## Future effects, impacts and issues

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The principal challenges to policy makers from future climate change are likely to come from changes in the occurrence of extreme events and sea-level rise.

Under climate change, it is likely that some extreme events, in some locations, will become more severe and more frequent. For some extremes, notably heatwaves, climate models can provide precise information, in which we can have confidence, on future severity and distribution. For other extremes, there is much less confidence. The Productivity Commission (2012) report *Barriers to Effective Climate Change Adaptation* is clear in its recommendations that policies should be 'no regrets', aiming to help the community deal with the current climate and hence building adaptive capacity for the future.

Sea-level rise will also challenge policy-making, threatening housing, infrastructure and ecosystems. The financial cost of inundation associated with a sea-level rise of 1.1 m (i.e. the combined value of exposed commercial, light industrial, transport and residential infrastructure) is estimated as greater than \$226 billion (2008 prices) (DCCEE, 2011). Coastal ecosystems will be threatened by sea-level rise causing salinisation of soils and saltwater intrusion into estuarine and freshwater habitats.

Responsibility for managing development planning in the coastal zone lies principally with local governments, and these are currently uncertain about their roles, responsibilities and legal liabilities regarding adaptation. This uncertainty is likely to lead to inaction at best, and at worse decisions that increase housing and infrastructure exposure to storm surge and inundation in the future. The Productivity Commission (2012) recommends that state governments provide clarity regarding local government roles, responsibilities and liabilities.

# Adaptation: the role of policy and regulatory frameworks

The primary roles of policy and regulation in adaptation are to enable decision-makers at all levels of government and in the private sector to effectively adapt the nation to climate change and to ensure that policy and regulatory frameworks do not impede adaptation. To what extent do current policy and regulatory frameworks fulfil these roles?

## Certainty and continuity

Decision-makers responsible for adaptation seek certainty – not only in the projections of climate change (and practitioners are increasingly sophisticated in their understanding of uncertainties in the climate science) - but in the policy contexts within which they operate. And, largely, this certainty is lacking. The roles and responsibilities of all players are not understood and need to be identified and communicated widely<sup>1</sup>. The three tiers of government in Australia do not all subscribe to the same adaptation policy. Even within the same tier of government, policy 'back-flips' can lead to decision-making paralysis. This is not to say that 'one size fits all' across the nation – policy must be responsive to geographical differences from north to south and coast to outback. But a common understanding of the reality of climate change and of national goals for adaptation will lead to effective decision-making to meet the challenge.

Shifts within government from maintaining in-house expertise to buying in expertise, although they may deliver immediate cost savings, erode continuity in corporate knowledge in the longer term. Building back that knowledge will be expensive. Similarly, closing hydrology and climate monitoring stations may cut costs, but the loss of knowledge about what is happening to our environment can be highly detrimental to the formation of sound and effective adaptation policy.

Present-day climate variability can lead to shifts in policy that affect resilience and adaptive capacity, particularly with respect to water management. Periods of drought will lead to emphasis on drought policy and, because these phases can be as long as a decade, expertise and knowledge in managing floods can be lost. When the drought ends, the focus of policy shifts away to other concerns.

## Governance issues

In governance terms at least, adaptation is currently perceived as the poor cousin of mitigation. It is often siloed within a single department, and neglected elsewhere within government. Although there are very good reasons why the adaptation response should begin now, as has been outlined in all NCCARF's Policy Guidance Briefs, real action to address the adaptation challenge is rare and slow. Adaptation is expected to happen through the provision of guidelines and recommendations, and rarely through the force of law. There is some progress towards more mature and integrated adaptation policy, but it is slow, and sometimes impeded by political imperatives.

Policy responses within one silo need to consider impacts beyond the silo, for example decisions to grow and export more food to address climate change impacts elsewhere in the world need to consider the effects on people, the community and environment.

## Markets and adaptation

Markets and market forces have proved capable of encouraging effective adaptive behaviour, as has been seen in the water markets of the Murray-Darling Basin. However, there is a risk that they will lead to inequitable outcomes in smaller, less mature markets. Policy should work to establish equitable and efficient markets that lead to positive adaptation outcomes, which may require some form of incentive program.

## Engaging the community and local governments

Adaptation relies heavily on community engagement for success. At present, the community is not sufficiently engaged; programs such as Get Ready Queensland (<http://www.disaster.qld.gov.au/getready/>) and Harden Up (<http://hardenup.org/>) seek to encourage communities to take responsibility for preparedness and resilience-building, but more needs to be done. The community finds the language of climate change threatening, and responds by disengaging with the issue. How to reconcile the need to alert the community to the risks of climate change, and to promote behaviour change, without losing engagement and participation remains a challenge.

Rebuilding takes place after extreme events such as cyclones and floods. Policy, planning and regulation frameworks are not designed to encourage betterment (i.e. building back more resilient housing and infrastructure), although this is changing, and there is widespread recognition of the good sense of a betterment approach. Betterment, and creating pathways to encourage and enable communities to increase resilience, should be a strong component of community engagement and institutional planning.

Of the three tiers of governments, it is generally local governments that are responsible for action to address climate change and sea-level rise. Local governments are generally under-resourced to undertake this responsibility, in financial and expertise terms. They do not feel empowered to act, and are uncertain as to their legal position.<sup>2</sup>

<sup>1</sup>"Roles and Responsibilities for climate change adaptation in Australia", produced by the Select Council on Climate change Adaptation Working Group, has gone some way to clarifying in broad terms the responsibilities of the three tiers of government in adaptation. See <http://www.climatechange.gov.au/community-discussion>.

<sup>2</sup>See NCCARF's Policy Guidance Brief "Challenges of adaptation for local governments" [http://www.nccarf.edu.au/sites/default/files/attached\\_files\\_publications/GOVERNMENT\\_070313\\_A4.pdf](http://www.nccarf.edu.au/sites/default/files/attached_files_publications/GOVERNMENT_070313_A4.pdf)

Section 4 points to some clear policy needs in order to ensure effective adaptation.

- *Government, and the community at large, need to be clear why there is a need for adaptation now, to address an issue that apparently will not cause major effects for several decades.* Reasons include: first, that climate change is not a well-behaved and gradual process, and there is a risk of major impacts now; second, inter-generational equity considerations mean that we should not leave future generations to manage a problem that we have created; third, the lifetimes of some fixed infrastructure are such that they need to be built now with future climate change in mind.
- *Communities and individuals need to be incentivised by government to evaluate their risk and to plan to build resilience against natural hazards and climate change.* Policies need to be in place to promote betterment when rebuilding following extreme events.
- *Planning on the assumption of a stable and well-behaved climate has proved a flawed strategy, with the worst-case scenario sometimes being exceeded* as happened, for example, in planning for the Murray-Darling Basin. Planning for the future requires a long-term approach, a paradigm that is poorly suited to the democratic political process. The right actions at the right time, while bearing in mind the precautionary principle, are likely to reduce the cost of adaptation in the long term.
- *Autonomous adaptation is already taking place at the community levels, and government has a role in facilitating this process, and ensuring it is not maladaptive.* Keeping communities well informed is an important part of this, so that individual households can evaluate their risk and plan accordingly.
- *Any subsidies or incentives that support people to live or do business in at-risk (e.g. flood-prone) areas should be removed.* Building codes can help reduce insurance costs and should be used strategically to drive changes that reduce risk and hence insurance costs.
- *Decision-making for adaptation will be most effective when it is in the context of the best possible information.* There needs to be greater effort towards quality information collection – understanding what data are needed and maintaining long-term monitoring programs. High spatial resolution information (property scale rather than postcode scale) can help with insurance costs.
- *There needs to be recognition that information on the future will always contain uncertainties, and decision-makers need to be educated in how to use this uncertain information.* Lack of certainty should not be a barrier to adaptation.
- *There is a need for clear definition of responsibilities among the three tiers of government.* Communities need to be clear and certain about what governments can, and cannot, do with respect to emergency management and adaptation. Communities need to be delivered strong ownership of the vision and the means to achieve it, making it more likely that adaptation goals will be reached.
- *The Australian Government has the opportunity to show leadership in adaptation* by ensuring that all responsibilities and functions are exercised with consideration of the effects of climate change. This can influence on contractors broader sections of society through procurement, grant provision and investment. The imposition of requirements on contractors to address climate risk and adaptation will have wide influence through the scale of government buying power.

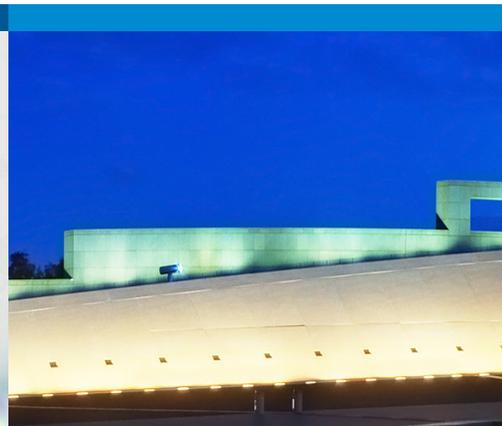
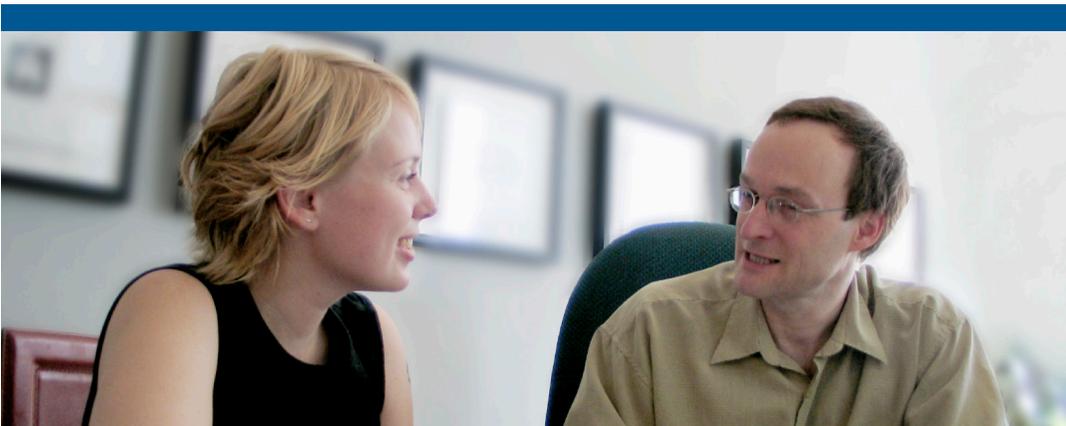


# Approach

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The policy guidance provided in this brief was developed at a workshop held in Sydney in May 2013. The workshop was attended by policymakers and managers from within the Australian Government, ACT Government, New South Wales Government, Queensland Government, Local Government NSW, Sydney Coastal Councils, Shoalhaven City Council, Ku-ring-gai Council, the National Water Commission, the Productivity Commission, Regional Australia Institute, James Ball (University of Technology, Sydney), Michael Howes (Griffith University), Adam Loch (University of South Australia) and NCCARF staff.

NCCARF's research programs have delivered over 140 reports on climate change adaptation, many of which address the topics of the Policy Guidance Briefs. For more information, see: [www.nccarf.edu.au/publications](http://www.nccarf.edu.au/publications)



NCCARF is producing a portfolio of twelve Policy Guidance Briefs in 2012–13 on critical climate change adaptation topics. For a complete list of available Policy Guidance Briefs, please go to: [www.nccarf.edu.au/publications/policy-guidance-briefs](http://www.nccarf.edu.au/publications/policy-guidance-briefs)

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