

# Climate change adaptation: Briefing note 3

## Planners

### Who might this be relevant for:

Planning professionals, town planners, strategic planners, infrastructure managers, urban planners, transport planners, landscape architects, developers

Climate change has the potential to impact many aspects of life and business in Australia. Planners are very skilled at looking ahead, to the challenges of the future. It is important that planners consider climate change risks now even though some of the impacts won't be felt for several decades. Many of the ways of dealing with changing climate will need long lead times and extensive planning and preparation, so while there is time to respond, it does mean putting plans in place in the near future for the long term.

Table 1: Summary of climate projections and impacts. Developed using information from CSIRO and Bureau of Meteorology, Climate Change in Australia website (<http://www.climatechangeinaustralia.gov.au/>) [Accessed 13 May 2016].

Type of change	Timeframe/ certainty	Projections	Impacts relevant to your sector
Temperature change	Immediate changes High confidence	Average temperatures to increase by between 2.6 and 4.8°C by 2100	Increased demand for cooling technologies and cooler building designs. Includes green space, passive cooling designs and increased energy efficiency.
Extremely hot days	Immediate changes High confidence	More than twice the number in some cities	Risk of failure of or damage to infrastructure (e.g. electricity supply, loss of transport services, metal failure). Demand for cooling capacity that does not rely on electricity.
Fire weather	Immediate changes High confidence	Increased frequency and severity of extreme fire danger. Greatest risk in south-eastern Australia	Increased fire risk for existing and new developments, possibly in areas not typically prone to fire. Risk of failure of or damage to infrastructure (e.g. power transmission, buildings).
Sea level rise	Mid century High confidence	Projected to rise by as much as 0.52 to 0.98m by 2100 bringing increased risk of coastal flooding during storms	Increased risk of erosion and beach-loss. Increasing risk to existing and new developments and infrastructure in coastal regions of erosion threat and inundation, particularly towards the end of the century.
Rainfall extremes	Mid century Medium confidence	Extreme rainfall events or higher rainfall intensities likely to become more common in throughout Australia, and droughts are expected to be more intense and more frequent in southern Australia	Impacts on the capacity and maintenance of storm water drainage and sewerage infrastructure, drinking water quality and water demand for irrigation and domestic needs.
Storms and cyclones	Mid century Medium confidence	Fewer extreme storms but increased intensity	Potential for greater wind stress on buildings and structures in the future.



### Adaptation:

Action to limit the negative impacts of climate change and take advantage of any opportunities

## What climate change may mean for your sector

Many of the challenges planners will face under climate change are not new (e.g. juggling competing interests), but do require consideration of risks that may intensify over a long time horizon, impact at a broader scale or manifest in sudden shocks or step changes. Some of the climate change challenges you may be thinking about include:

- **Increased risk of flooding and inundation** Increased sea levels increase the risk of inundation, particularly during king tides and storms. New areas may become at risk of flooding.
- **Impacts of increased warming including urban heat island effect** Warmer temperature and more frequent extreme heatwaves may create health and welfare issues for communities as well as impacts on the function of some infrastructure, increased morbidity and mortality for vulnerable people.
- **Multiple hazards** Extreme weather events may coincide, for example a heatwave could be followed by bushfire.
- **Competing land uses and demands** Climate change may alter the suitability of land for some plant and animal species. For agriculture, this may mean looking for more favourable conditions for farming. For biodiversity, this may mean new areas for conservation purposes.
- **Data, information and uncertainty** Climate change brings the challenge of considerable uncertainty including impacts, rates of change (e.g. how fast will the sea rise) and policy to address it. Planners are likely to be looking for more accurate, finer resolution information to help with decision-making.

## How adaptation might help shape your response to these challenges

Adapting to climate change means making plans and where appropriate taking action now to reduce the negative impacts of climate change now and in the future while also taking advantage of any opportunities that arise. Specific adaptation actions you might be considering include:

- **Planning approaches that are more proactive rather than reactive** Planning may need to move outside short-term cycles of planning and decision making to longer term, 15-20 years, planning frameworks.
- **Adopting more holistic, regional or landscape approaches** Climate change will not respect boundaries or sectors so it will become increasingly important to consider changes beyond the are subject to planning. For example, new areas may become important for wildlife and these could be incorporated into considerations of zoning or development plans.

- **Considering co-benefits of adaptation options** For example, a sea wall design built to protect properties may be designed to also provide for recreation and/or habitat.
- **Planning for multiple hazards** Incorporating considerations of the breadth of potential hazards will help build an efficient emergency management framework.
- **Collaborating with other specialists** Climate change risks are complex and multifaceted. By including expertise from emergency management practitioners, engineers, environmental specialists etc. plans are likely to be more robust and appropriate.
- **Developing an understanding of the cost implications of not adapting** (doing nothing) compared with doing something (adapting). Cost benefit analysis should weight the long-term impacts including social costs of not acting against the costs of implementing and maintaining costs the adaptation option including social benefits.
- **Considering your legal risk** All planning decisions are open to a legal challenge. The inherent uncertainties in climate change—such as timing and scale of impacts—can expose planners to legal risk. Use available guidance on your decision-making to help reduce this legal risk.
- **Addressing increasing heat risk** may be made through the increased use of green infrastructure, urban design and building design to reduce vulnerability to interrupted power supplies.
- **Considering the location of the most vulnerable members of the community** including the aged, less mobile or lower socio-economic members and the impact of climate risks on them in that location. For example, siting an aged care facility on a floodplain will mean evacuation and protection is far more challenging than if the land were used for another purpose such as a car park or sports field.
- **Undertaking community consultation and engagement** as part of the planning process will help the community understand the rationale for planning decisions and understand their own risks, the time frame of the problem and the options for addressing the risks.

This sector brief was developed drawing on the broad body of new adaptation research commissioned by NCCARF. The following reports and factsheets were relied on to develop this sector brief:

- Quantifying the costs of climate change on local government assets
- Enhancing the resilience of seaports to a changing climate
- A framework for adaptation of Australian households to heat wave
- Australia's country towns 2050: What will a climate adapted settlement pattern look like?
- South East Coastal Adaptation (SECA): Coastal urban climate futures in SE Australia from Wollongong to Lakes
- A spatial vulnerability analysis of urban populations during extreme heat events in Australian capital cities
- A framework for adaptation of Australian households to heat waves
- Impact of the 2010–11 floods and the factors that inhibit and enable household adaptation strategies.
- Planning, building and insuring: Adaptation of built environment to climate change induced increased intensity of natural hazards.

All documents are available for download at: [www.nccarf.edu.au/adaptation-library](http://www.nccarf.edu.au/adaptation-library)  
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