



factsheet



Climate Change - potential impacts and costs

New South Wales (NSW)

Snapshot

Around 7.2 million people, 32 per cent of Australia's population, live in NSW. With large population centres clustered along the coastline and important agricultural and tourism industries in regional centres, NSW is highly vulnerable to a changing climate.

The following information highlights some of the potential impacts and costs to the state's industries, infrastructure, environment and people from climate change.

Coastal Zone

Between 43,900 and 65,300 residential buildings, with a current value of between \$14 billion and \$20 billion may be at risk of inundation from a sea level rise of 1.1 metres. A 1.1 metre sea level rise will also put at risk up to 4,800 km of NSW roads, up to 320 km of NSW railways, and up to 1,200 commercial buildings. These assets have an estimated value of up to \$10.4 billion, \$1.3 billion and \$9 billion respectively.

Local government areas of Lake Macquarie, Wyong, Gosford, Wollongong, Shoalhaven and Rockdale represent over 50 per cent of the residential buildings at risk in NSW.

Global sea levels increased by 1.7 mm per year over the 20th century. Over the past 15 years, this trend has increased to approximately 3.2 mm per year. This rate varies significantly around Australia. Since the early 1990s, NSW has experienced sea level rise of approximately 2.1 mm per year.

In 2009, the Australian Government produced the report, [Climate Change Risks to Australia's Coasts](#), followed in 2011 by an update to this report entitled [Climate Change Risks to Coastal Buildings and Infrastructure](#).

For a visualisation of the potential sea level rise, the Department has also produced a series of maps available at: www.ozcoasts.org.au.

Water Supply

Modelling for the Sydney Water Balance Project has found that there may be a decrease in annual rainfall and runoff in the inland catchments and minor increases in the coastal catchments by 2030. Climate change is also likely to result in an increase in evaporation throughout the catchments, with the Sydney Water Balance Project predicting up to a 22 per cent increase in pan-evaporation in inland catchments and a 9 per cent increase in coastal catchments by 2070.

Extreme Events

In Sydney extreme heat days of over 35°C are likely to increase from 3.5 days per year currently experienced to up to 12 days by 2070 without global action to reduce emissions.

Climate change is also expected to contribute to an increase in the number of extreme bushfire days in parts of NSW. In the Sydney region the number of extreme fire danger days could rise from the current 9 days per year to as many as 15 in 2050. Research suggests that by 2020 fire seasons will start earlier and end slightly later, while being generally more intense throughout their length, with these changes becoming more pronounced by 2050.

An increase in mean temperatures and a decrease in rainfall and relative humidity will likely amplify the fire danger in south eastern forests, with increased fire frequency and extent of area burned.



Human Health

As the number of days above 35°C increases and heatwaves become more frequent, more people are likely to suffer heat-related illnesses and death, with the elderly particularly vulnerable. An estimated 176 people aged 65 and over die each year in Sydney from heat-related deaths (1997-1999 average). This could potentially rise to 417 people a year by 2020 and up to 1,312 by 2050.

The population of NSW is more susceptible to cold-related deaths than heat-related deaths. As such, the total temperature-related deaths are projected to be up to 1,906 in 2100 with no mitigation, compared to 2,754 in a world with no human-induced climate change.

Mosquito-borne diseases such as dengue and Murray Valley Encephalitis can lead to serious and sometimes life-threatening illnesses. Under moderately warmer and wetter climate conditions there may be an increase in the prevalence of some mosquito-borne diseases in some parts of NSW.

Other climate change related health risks relevant to NSW include the impact of severe weather events including bushfires, food-borne infectious diseases, increases in air pollution and mental health consequences. The adverse health impacts of climate change will be greatest among people on lower incomes, the elderly and the sick.

Natural Environments

The Australian Alps, which are home to vulnerable alpine flora and fauna, are highly susceptible to warming. Under an extreme emissions scenario with increased warming and decreased rainfall, the length of the snow season may decrease by up to 96 per cent by 2050. Species such as the Mountain Pygmy Possum that occupy habitat at the highest elevations and in the coldest environments will have nowhere to retreat as the climate warms. A 1°C temperature rise could dramatically decrease the entire climatic habitat of the Mountain Pygmy Possum.

It is predicted that climate change could impact on Lord Howe Island by increasing the altitude of the cloud layer through rising sea surface temperatures. This would constitute a major climate related threat to the plant

communities of Lord Howe Island. This cloud layer provides a source of precipitation and maintains the humidity required by about 86 per cent of the island's endemic plant species, including the dwarf mossy forest that dominates the summit of the peaks on the Island. Seabirds may also be at risk from changes in the abundance and distribution of marine food caused by climate change in combination with other threats, such as intensive fishing activities.

In the greater Blue Mountains region of NSW, more variable rainfall, drought and strong winds, in combination with highly flammable vegetation are likely to create ideal conditions for extreme and more frequent fire behaviour. Many eucalypt species require fire-free periods of six years or more to ensure their survival and as such changed forest fire regimes may result in the irreversible loss of some species and have severe impacts for fauna throughout the region.

Agriculture

Agriculture plays an important role in the NSW economy. Potential changes in climate may reduce productivity and output in agricultural industries in the medium to long term through higher temperatures, reduced rainfall and extreme weather events.

The gross value of NSW agriculture production in 2009-10 was \$8.4 billion. ABARE modelling in 2007 estimates the following declines in agricultural production for NSW compared to a 'business as usual' scenario.

	Approximate decline in production by 2030 (%)	Approximate decline in production by 2050 (%)
Wheat	8.4	11.6
Beef	0.7	3
Sheep meat	8.1	13.2
Dairy	5.5	11.3

Adaptation

Given the state's high vulnerability to projected climate change, it is important that appropriate actions are taken by government, businesses, communities and individuals to ensure effective adaptation is possible in a changing environment.

More information

For details on what the Australian Government is doing to prepare for the impacts of climate change, visit www.climatechange.gov.au

See what the New South Wales Government is doing at: www.environment.nsw.gov.au

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