



factsheet



Climate Change – potential impacts and costs

South Australia

Snapshot

South Australia is home to more than 1.6 million people or around 7.4 per cent of Australia's population. Already the nation's driest state, climate change presents South Australia with a tough challenge, particularly in securing a reliable water supply.

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

Coastal zone

Climate change will lead to sea level rise and potentially greater storm surges which will impact on coastal settlements, infrastructure and ecosystems. Between 31,000 and 48,000 residential buildings in the state may be at risk of inundation from sea level rise of 1.1 metres. The current value of the residential buildings at risk is between \$4.5 billion and \$7.8 billion. A 1.1 metre sea level rise will also put 6,763km of South Australia's roads, up to 219km of railways and up to 1488 commercial buildings at risk. These assets have an estimated value of up to \$9.5 billion, \$900 million and \$27 billion respectively.

Additionally, nearly half of the South Australian coastline is sandy beaches (47 per cent), with over half of these sandy beaches being backed by soft sediment plains. Rising sea levels will make these coastlines significantly more vulnerable to potential shoreline recession and foredune destabilisation.

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 southern Australia has experienced increases of between 2-7 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*. This report provides information on sea level rise in Australia. For a visualisation of the potential sea level rise in South Australia, the Department has produced a series of maps available at www.ozcoasts.org.au.

Water supply

The economic impact of a hotter and drier climate on the water supply infrastructure for Adelaide is likely to be significant by 2070. The quality of water being delivered from the Murray Darling Basin is also expected to decline significantly by 2050 due to rising salinity levels.

Projections of future rainfall indicate that there will be declines across South Australia. While changes to rainfall patterns will vary across the state, declines will be most notable in winter and spring.

Declines in rainfall will lead to a greater frequency and/or severity of drought, with decreased flows in water supply catchments. However, research also shows that despite a drier average, there may also be an increase in flood risk due to an increase in extreme

rainfall events.

During times of drought, Adelaide can rely on the Murray Darling Basin for up to 90 per cent of its domestic and industrial water supply. The development of alternative water resources is a priority for South Australia and a desalination plant is being constructed to provide a reliable, non-rainfall dependent water source.

Rainfall over December 2010 to February 2011 was the highest on record for large areas of the southern Murray Darling Basin with good falls continuing through to March. Inflows into the Murray River were almost twice the long-term average for the period.

Heatwaves and Human Health

The average number of days above 35°C in Adelaide could increase from 17 days currently to 21-26 days by 2030 and to 24-47 days by 2070.

As the number of very hot days (above 35°C) increases more people are vulnerable to heat-related illnesses and death, particularly the elderly. An estimated 200 people over 65 die annually in Adelaide from heat-related deaths (1997-1999 average). This could potentially rise to 342-371 by 2020 and 482-664 by 2050.

In March 2008, Adelaide experienced 15 consecutive days of 35°C or above and 13 consecutive days of 37.8°C or above, setting new heatwave records.

In January-February 2009, south east Australia experienced record-breaking prolonged high temperatures across the region. Adelaide reached its third-highest temperature of 45.7°C and experienced nine consecutive days above 35°C.

Other health related impacts relevant to South Australia could include an increase in water, food and vector borne diseases, air pollution and mental health impacts.

Natural Environments

Land-based species and ecosystems restricted to

Kangaroo Island and the Mount Lofty Ranges are likely to be among the most vulnerable to climate change. Coastal ecosystems will also be vulnerable to sea level rise, storm surges and reduced rainfall. Ecosystem change is also likely to impact on internationally significant migratory bird species.

Agriculture

Agriculture plays an important role in the South Australian economy. The state's agricultural production was valued at \$4.7 billion in 2009-10.

Future productivity growth is likely to be affected by climate change in the form of higher temperatures, reduced rainfall and more frequent extreme weather events, as well as by natural resource degradation such as soil erosion and salinity.

Since 1997 South Australia's agricultural regions have experienced a marked decline in growing season (April-September) rainfall. This decline is mostly due to a drying trend in autumn and, to a lesser extent, in winter. Season breaks are occurring later, and bringing less rainfall. The spring rainfall trend shows a weak increase since 1950, while the summer rainfall trend shows an increase only in the northwest of the state. Overall, the trend in annual rainfall since 1950 shows a decline across the agricultural regions.

South Australia produces almost half of the nation's wine grapes and above 57 per cent of national wine exports, valued at over \$1.3 billion in 2009-2010. Reduced rainfall and water availability coupled to a warming climate could affect the state's iconic wine-growing regions. Rising temperatures are likely to have a major influence on wine grapes bringing the harvest forward by a month and yielding lower quality grapes which would eventually affect grape prices.

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 South Australian Government is doing at: www.climatechange.sa.gov.au

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