Australian Government
Department of Climate Change and Energy Efficiency

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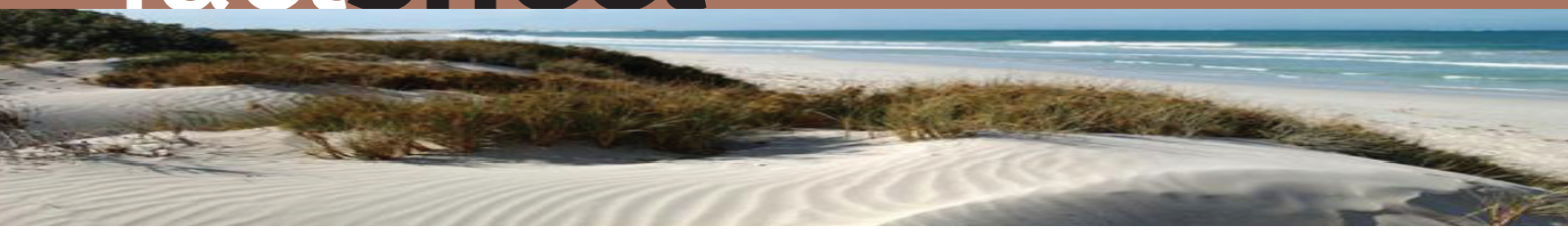

Climate Change – potential impacts and costs

Western Australia (WA)

Snapshot

WA has a population of approximately 2.3 million people. It is Australia's largest state with an area of more than 2,500,000 sq km and over 12,500km of coastline.

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

Coastal Zone

WA has the longest coastline of any Australian state or territory. Climate change will lead to sea level rise and potentially greater storm surges which will impact on coastal settlements, infrastructure and ecosystems.

Between 20,000 and 30,000 residential buildings, with a current value of between $5 billion and $8 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 up to 9,000 km of WA's roads, up to 114 km of WA's railways and up to 2,100 commercial buildings at risk. These assets have an estimated value of up to $11.3 billion, $500 million and $17 billion respectively.

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 the southern coast of WA has experienced increases of up to 4.6 mm per year, while the western coast has experienced increases of up to 7.4 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. These reports provide information on sea level rise in Australia. 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

Rainfall in south-west WA has already reduced by around 15 per cent since the mid-1970s. From 1911 to 1974 the average stream flow into Perth Dams was 338 gigalitres (GL). From 1975 to 2000 average stream flow was almost half this value at 177 GL. From 2001 to 2010 inflows again halved to approximately 75 GL. There is evidence that greenhouse gases emitted by human activities are responsible for half the decline in rainfall in south-west WA.

Modelling suggests a decrease in mean annual rainfall of 7 per cent and a 14 per cent reduction in surface water runoff in the period 2021 to 2050 relative to the period 1961 to 1990. If current climate trends continue, south-west WA will potentially experience 80 per cent more drought-months by 2070.

A hotter, drier climate would inflict a high economic impact on water supply infrastructure across the country, with Perth likely to be the most severely impacted city in Australia through climate change induced water scarcity.

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Extreme Events

Projections indicate that the annual average number of days above 35°C in Perth could increase from the 28 currently experienced to up to 67 days by 2070 without global action to reduce emissions.

Projections also indicate an increase in the intensity and frequency of bushfires. The 2010-11 WA bushfire season was one of the most devastating and destructive in the state's history. The bushfires in the Perth Hills in February 2011 destroyed 71 homes with a further 39 homes and other structures being damaged. An independent review of bushfire risk management in the Perth Hills area has been established.

In the north of WA there may be a decrease in the total number of cyclones, however, there is likely to be an increase in the proportion of tropical cyclones in the more intense categories. By 2030 there may be a 60 per cent increase in intensity of the most severe storms and a 140 per cent increase by 2070.

Human Health

Increased hot weather could result in more heat-related deaths. By 2100, with no mitigation, 685 temperature related deaths are projected, compared to 515 in a world with no human induced climate change.

Other climate change related health risks relevant to WA include the impact of severe weather events including bushfires and heatwaves, 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

South-west WA is recognised globally as an ecological 'hotspot' for unique plant and animal species. Climate change is likely to have severe impacts on endemic species in the south-west, including native fish which are vulnerable under higher temperatures.

Agriculture

Agriculture is WA's second major export industry. The state's vast area provides soils and climates suited to a variety of agricultural production from rangeland grazing and broad acre cereal cropping to irrigated pastures and horticulture, orchards and vineyards. Wheat, wool, beef and lamb are its main products.

By 2070, south-west WA is likely to experience yield reductions in wheat. Cropping may become non-viable at the dry margins with strong warming and significant reductions in rainfall. Some regional centres which depend on agriculture may be adversely affected. Projections indicate that wheat production in WA could decline by 8.9 per cent by 2030 and 13.4 per cent by 2050, with similar declines for sheep meat. More hot days and less rainfall could also affect livestock which are likely to be adversely affected by greater heat stress.

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 West Australian Government is doing at: www.dec.wa.gov.au

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