

CLIMATE CHANGE & HEALTH IN AUSTRALIA

MINI FACT SHEET



Doctors for the Environment Australia has developed this fact sheet to outline the effects of climate change on human health particularly in Australia, and how health can benefit from efforts to lessen and prevent climate change. The recent Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) has once more highlighted the urgent need for action to limit global warming.

BACKGROUND

Increasing greenhouse gas concentrations in the Earth's atmosphere are contributing to climate change.

Greenhouse gases:

- Include carbon dioxide, methane, nitrous oxide and halocarbons
- Are mainly produced by burning fossil fuels for electricity and transport; mining; deforestation and agriculture
- Trap heat in the lower atmosphere, producing increases in air and sea temperatures: this leads to changes in rainfall patterns (disrupting normal weather patterns), worsening extreme events (heatwaves, bushfires, floods), and sea level rise. Carbon dioxide also causes ocean acidification.

Climate change affects our health via:

- Direct effects – increased risk from heatwaves, floods, bushfires and cyclones
- Indirect effects – increasing air pollution, changes to infectious diseases, impacts on food and water, and impacts on mental health. Addressing climate change also presents an opportunity to improve health, both locally and globally.

EXTREME HEAT

Average temperatures have increased across Australia in the past 50 years, and heatwaves have become hotter, longer and more frequent.

Further warming is expected throughout the 21st century due to climate change, with even longer, hotter heatwaves expected.

The health effects of heatwaves include:

- Direct heat-related illness such as dehydration and heat stress
- Worsening of pre-existing chronic diseases such as heart and kidney disease
- Increased rates of premature death in older age groups
- Increased pressure on healthcare and emergency services.

Heatwaves have caused more deaths in Australia over the past 100 years than any other natural disaster: they are estimated to cause more than 1100 deaths in Australia each year.

Power outages are common during heatwaves:

- Air conditioning and refrigeration may fail, with risk of food spoilage and damage to essential medicines and vaccines
- Transport services can be impacted affecting supply chains, businesses and communities.

BUSHFIRES

Extreme fire weather danger has increased in Australia since the 1970s. The risk of severe bushfires will continue to increase due to climate change, the result of increasing temperatures, more frequent, intense and prolonged heatwaves, and declining rainfall.

The health effects of bushfires include death and illness from:

- Burns
- Injuries
- Dehydration
- Heat exhaustion
- Smoke inhalation
- Damage to health care infrastructure (hospitals, medical centres)
- Trauma, mental health impacts.

FLOODS & STORM SURGES

Flood risk is expected to increase in many parts of Australia with climate change, due to increasing frequency and intensity of extreme rainfall events and sea level rise.

The health effects of floods include death and illness due to:

- Drowning
- Injuries
- Damage to sewerage and drinking water supply systems
- Increased risk of mosquito-borne diseases
- Asthma and allergic conditions triggered by mould growth in damp conditions
- Trauma, mental health impacts.

CYCLONES

Cyclones are likely to become more intense in some regions due to climate change. The health effects of cyclones include death and illness due to:

- Injuries
- Loss of shelter and essential services
- Trauma, mental health impacts.

FOOD AND NUTRITION

Declining food availability and increasing prices are expected due to climate change.

Causes include declining average rainfall across many parts of the country, reduced river flows, and increasing drought frequency and severity. Changing patterns of pests and diseases may also threaten crops and stock. Healthy food may become less accessible, particularly for low income earners and those living in regional and remote areas.

INFECTIOUS DISEASES

Climate change may increase the risk of mosquito-borne diseases (such as dengue fever and Ross River virus) in some parts of Australia, due to increasing temperatures and changing rainfall patterns.

Increasing temperatures are predicted to increase rates of food-borne infections such as bacterial gastroenteritis, due to increased growth of pathogens including *Salmonella*, *Campylobacter* and *E. coli*.

AIR POLLUTION

Besides being a significant source of greenhouse gas emissions, the burning of coal for electricity releases dangerous air pollutants:

- These include particulate matter, sulphur dioxide, nitrogen oxides, mercury, cadmium, and arsenic.
- Air pollution from coal industries contributes to lung cancer, other lung diseases (including asthma), heart disease and stroke.
- The air pollution cost of coal's impacts on health in Australia is estimated at approximately \$2.6 billion per year.
- Coal mine fires (such as the Hazelwood mine fire in Victoria in 2014) also produce toxic gases and particulate matter, threatening the health of local communities.

Across Australia, air pollution contributes to an estimated 3000 deaths per year.

Under some climate change models, diseases due to ozone air pollution (such as worsening asthma) are expected to increase as temperatures rise, particularly within and around urban areas.

ALLERGIES

Approximately 1 in 5 Australians has an allergic disease, including asthma, hay-fever and eczema, and 1 in 10 has asthma.

Asthma and other allergic diseases have a major impact on physical health and quality of life.

Warmer temperatures and

increasing levels of carbon dioxide in the atmosphere can increase the production, potency and release of pollens, which can trigger asthma. Asthma is also aggravated by air pollutants such as nitrogen oxides, sulphur dioxide, ozone and particulate matter, which are produced during the burning of fossil fuels.

MENTAL HEALTH

Climate change is likely to adversely affect the mental health of many people in Australia.

Extreme events such as cyclones, floods, droughts and bushfires cause psychological distress due to fear, trauma, loss of loved ones, destruction of property, financial stress and disruption of communities.

Other effects of extreme events include displacement, disrupted goods and service availability, employment uncertainty, and interruption of education and other routine activities. Depression, anxiety and post-traumatic stress disorders may occur as a result, with major long term effects on personal, family and community function.

VULNERABLE GROUPS

People who tend to be more vulnerable to the effects of climate change on health, include:

- Children
- Elderly people
- People with pre-existing medical conditions
- Aboriginal and Torres Strait Islander people
- People living in rural and remote areas
- Pregnant women and unborn babies.

WHAT CAN BE DONE?

Further climate change must be minimised to reduce risks to human health and avoid potentially unmanageable consequences.

The burning of fossil fuels must be phased out:

- 80% of the world's known fossil fuel reserves must be left in the ground to be able to limit global warming to 2°C
- Instead of relying on coal, oil and gas, we need to continue urgently transitioning to renewable energy sources – this is economically and technologically feasible, the barrier is now primarily a political one
- Enhanced efficiency and reduced consumption are already reducing Australia's energy use and will continue to be important.

Strong political commitment is required to halt new coal mine developments, ensure the decommissioning of existing coal mines and support the transition to renewable energy.

Australia needs stronger air quality regulations, to better limit emissions of harmful particulate matter, gases, and toxins as well as greenhouse gases. Forests and other ecosystems must be protected to keep carbon in soils and help minimise greenhouse gas levels. Individuals, communities and

governments must work to increase the use of active transport (cycling, walking and public transport) to reduce vehicular air pollution and greenhouse gas emissions, and avoid unnecessary air travel.

Reducing our consumption of processed foods, red meat and dairy products will help to reduce greenhouse gas emissions produced by the agricultural sector, as well as reduce other environmental impacts.

HEALTH AND CLIMATE.WIN:WINS

There are numerous 'co-benefits' for health to be gained by action to limit climate change:

- Reduced rates of lung cancer, other lung diseases, heart disease and stroke due to improved air quality
- Reduced rates of obesity, diabetes, heart disease, some cancers, and many musculo-skeletal disorders due to increased physical activity through the use of active transport
- Reduced rates of heart disease and some cancers (particularly bowel cancer) due to reduced red meat consumption
- Improved air and water quality, as well as the benefits of protected ecosystems such as forests
- Improved mental health and general wellbeing as a result of preserved urban green spaces and connections with the environment
- Better planned, cooler, greener, more people-centred cities.

MORE INFORMATION

For more information about climate change and health, visit:

- Doctors for the Environment Australia <http://dea.org.au/>
- Doctors for the Environment Australia Position Statement Climate Change and Health http://dea.org.au/images/general/DEA_Position_Statement_Climate_Change_and_Health_05-13.pdf
- Doctors for the Environment Australia Climate Change and Health Policy 2013 http://dea.org.au/images/general/DEA_Climate_Change_and_Health_Policy_05-13.pdf
- Doctors for the Environment Australia No Time for Games: Children's Health and Climate Change http://dea.org.au/images/general/Children_and_climate_change_report%3A_No_Time_for_Games_web.pdf
- Climate Council <https://www.climatecouncil.org.au/>
- Intergovernmental Panel on Climate Change <http://www.ipcc.ch/>
- 2015 Lancet Commission on Health and Climate Change [http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(15\)60854-6.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)60854-6.pdf)