

Climate change impacts factsheet:

9. Tourism

In Australia, tourism contributes around 3.6% of GDP and employs half a million people. Substantial tourism industries exist in Australia's major cities, focussing on cultural, educational and food-related activities.

Outside cities, natural resources are often the primary attraction; with Tropical North Queensland, the Northern Territory, Australian Alps, Tasmania and south-west Western Australia major tourist destinations. In these areas, tourism is often the major industry. Great Barrier Reef tourism was worth about \$AU6 billion in 2005-2006, and the Australian Alps ski industry around AU\$900 million in 2005.

The tourism industry consists of service providers including food and hospitality, transportation, accommodation, and retail services. Although large international and national companies exist, the Australian industry is dominated by small and medium sized businesses, particularly in regional destinations. These can be a major employer in areas where there are few other jobs.

Tourism is a highly responsive and flexible industry, adapting to demand for new destinations, activities and markets. It is also volatile and sensitive to economic, social, ecological and technological changes. Tourism is particularly vulnerable to the effects of climate change.

Climate and tourism

Climate affects when, why, how and where tourists travel. It determines the nature and location of tourism attractions, such as snow, coral reefs and rainforests. It shapes the marketing of many destinations. It shapes tourists' expectations, experience and memories - affecting

Modelling indicates that adaptation strategies such as snow making may be successful in the short term, but that increased costs of energy and water are likely to impose economic and physical limitations in the longer term.



Image: Ruth Allison

where people return, and where they go next. As a result, the industry is vulnerable to short and long term climate variability and change.

Because holidays are an optional expenditure, tourism is sensitive to economic factors: the state of global financial markets, currency values, aviation fuel costs, levels of unemployment and interest rates. Increasingly, tourism is also influenced by marketing of 'green' credentials of destinations: ecotourism operators, or the perception of places as clean, green destinations.

Future climate trends

Climate models project an overall warming nationally of around 1.0°C up to 2030, relative to 1990. This, together with a 2-5% decline in rain everywhere except the far north, and a decline in snowfall, will have major implications for tourism.

These changes will contribute to an increasing number of dry, hot days, reduced snow cover, slight decreases in relative humidity and increased evapotranspiration. Potential changes in extremes include increased drought risk, an increase in dry fire weather, particularly in south-eastern Australia, and an increased risk of flooding.

For coastal areas, climate change is likely to bring rising sea levels, warmer and more acidic oceans, an increase in storm surges, and increased windstorm occurrence.

Climate change impacts and vulnerabilities

The vulnerability of tourism sectors and destinations will depend on the nature of the climate change impact. For example, the three most vulnerable ecosystems in Australia to climate change are: Kakadu, due to seawater inundation linked to sea-level rise; the Great Barrier Reef, due to warmer sea temperatures and ocean acidification; and the Australian Alps, due to reduced snow cover. These are all areas of high conservation value and major tourism destinations.

Tourism is particularly vulnerable to increases in occurrence of extreme events such as droughts, bushfires, cyclones and floods. These lead to dramatic declines in visitation at the time of and immediately following the disaster, as demonstrated by reduced tourist numbers to Queensland after the flood and cyclone events of the 2010/2011 summer. They also have longer term impacts as a result of damage to tourism related infrastructure, and more broadly through media coverage of the disaster changing the perceptions of potential visitors.

A short term 'benefit' of climate change is the 'last chance to see tourism' marketing of destinations likely to be adversely affected by climate change. This strategy is already being discussed for destinations such as the Great Barrier Reef.

Social and-economic impacts

Climate change will most adversely affect destinations strongly reliant on tourism (particularly where there are few other industries) and where the tourist attraction is likely to be strongly impacted. The Australian Alps is one of the most economically vulnerable destinations in Australia, as winter snow sports tourism is already being adversely affected by the decreasing duration and depth of snow cover. Although other exposed tourist industries exist, e.g., in tropical north Queensland, they appear less economically vulnerable because industries such as mining, construction and agriculture also play a major role in the regional economy.

Tourism is sensitive to mitigation strategies. Tourism-related transport (particularly air travel) contributes significantly to greenhouse gas emissions. As a result, tourism is vulnerable to cost increases due to policies to reduce emissions, such as carbon pricing or trading schemes, as well as tourists' desire to reduce their contribution to climate change. Tourism in Australia is particularly sensitive as it is a long haul destination for most international visitors, and even domestic tourists often travel significant distances to reach their destinations.

Adaptation: practices, options and barriers

Tourism operators can reduce dependence on climate-sensitive inputs such as energy and water by increasing the fuel efficiency of transport, increasing the use of low emissions energy in accommodation, and reducing water use. These approaches address mitigation and adaptation by reducing emissions and costs, enhancing green credentials and decreasing vulnerability.

Adapting to changes in extreme events includes changing the ways tourism infrastructure is built to minimise risks from flooding, windstorm damage, droughts and bushfires. Changes will be needed to ensure continued functioning of infrastructure that supports tourism, such as water and energy supply and sewerage facilities, roads, bridges, harbours and railways. Extreme events threaten the viability of tourism destinations due to the cost of replacing infrastructure, loss of income, increased insurance costs or inability to insure.

Tourism destinations will need to weather-proof core activities. This may involve diversifying away from reliance on natural attractions towards built facilities and social activities. For some destinations, it may involve directly addressing the physical impacts of climate change, such as the use of snow making by the ski industry. For destinations where nature-based tourism is important, adaption can involve increasing

the environmental resilience of ecosystems or adapting marketing to the changing nature of the ecosystem.

Barriers to adaptation include an unwillingness to recognise the reality of climate change, the lack of a sense of urgency, and a lack of recognition of the likely local impacts. Climate change may be viewed as a problem that is the responsibility of those at higher levels of government or the industry to address. Finally, the industry perceives a need for more detailed local information on climate change and its impacts, especially extreme events, as a basis for adaptation decisions.

Costs

There are potentially very high costs associated with climate change impacts, and mitigation and adaptation responses by the Australian tourism industry. Few studies compare the costs of impacts with those of adaptation strategies for tourism destinations nationally and internationally. One exception is snow-based tourism, where modelling indicates that adaptation strategies such as snow making may be successful in the short term, but that increased costs of energy and water are likely to impose economic and physical limitations in the longer term, particularly for lower-altitude resorts.

Research priorities

Currently only about 2% of academic tourism research internationally examines climate change in terms of mitigation or adaptation, despite it being identified as the major threat to the tourism industry in the 21st century. Research has focused on a limited range of sectors and locations, principally ski resorts in Europe and North America.

In Australia, there is increasing social, economic, physical and environmental research into adaptation, but large gaps remain in the knowledge available to government and industry to support decision making.

About the Network

Climate change adaptation activities in the tourism industry are undertaken by the Adaptation Research Network for Social, Economic and Institutional Dimensions. The network is hosted by the Melbourne Sustainable Society Institute at the University of Melbourne and brings together researchers, practitioners and decision-makers from universities, government, the private sector and civil society. For more see www.nccarf.edu.au/social-economic-and-institutional-dimensions



Image: Masao Mutoh

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