

Study Guide for the Australian Collaboration Fact and Issue Sheet

CLIMATE CHANGE: BASIC SCIENCE AND BACKGROUND

FOR REVIEW

1 Introduction

- 1a. What does the term 'climate change' refer to?
- 1b. What does the term 'global warming' mean?
- 1c. By how much did the average surface temperature of the earth increase during the 20th century?
- 1d. By how much has Australia's average temperature increased during the past one hundred years?

2. The enhanced greenhouse effect

- 2a. Name four examples of greenhouse gases.
- 2b. What is the natural greenhouse gas effect?
- 2c. What is the enhanced greenhouse effect?
- 2d. Which concentration of greenhouse gas is currently at its highest level for the last 650,000 years?
- 2e. Are Australians high or low emitters of greenhouse gases?
- 2f. How much warmer is the earth likely to become by 2090-2099?
- 2g. How much higher is the sea likely to be by 2100?

3. Projected Australian impacts

- 3a. In which areas or industries will Australia be vulnerable to climate change?
- 3b. i) How will climate change affect water supply?
ii) What effects will this have on agriculture in Australia?
- 3c. How will climate change affect the tourism industry?
- 3d. How might climate change affect our health?

4. The Australian Government's response

- 4a. What is the Kyoto protocol?
- 4b. What are the aims of the Asia-Pacific Partnership on Clean Development and Climate?

4c. In what sense did Australia's ratification of the Kyoto protocol mark a change in Australian Government policy?

4d. What is the Bali Roadmap?

FOR DISCUSSION

1. An idea for a class brainstorming activity:

The Fact and Issue Sheet states that carbon dioxide levels have increased by approximately 73 per cent when compared to pre-industrial levels. Do you know what 'pre-industrial' means? How was pre-industrial life different to life today? Can you identify items in your schoolroom that have been industrially produced? What kind of energy might have been used in their manufacture? How might such items have been produced in a pre-industrial era? What kind of energy might have gone into making such items in a pre-industrial era? Can you think of any examples in your home where you use a machine to do something that could easily be done by hand, using 'elbow grease'?

2. A question for class debate:

The Fact and Issue Sheet lists several areas in which Australians will be hard hit by climate change, such as water, agriculture and tourism. Effects are already being felt in some of these areas. But are we taking enough action as a nation? What do you think it will take before Australia really acts on climate change? Will we have to wait until our coastal cities are flooded or the price of fresh food becomes unaffordable, or will Australians summon the collective will to act before then?

3. A question for class debate:

We have yet to see whether the Rudd Government will act decisively on climate change. What are the obstacles to Australian governments taking action on climate change? Consider, for example, the short three-year term and the number of people employed in primary industries such as coal and forestry.

FOR RESEARCH

1. Using your local library and/or the internet, do some further research on the natural and enhanced greenhouse effects. Draw a diagram to help you visualise the greenhouse effect? You could start your research with an overview from the Environmental Protection Agency in Queensland, or from the USA's Environmental Protection Agency:

http://www.epa.qld.gov.au/environmental_management/sustainability/climate_change_in_queensland/what_is_the_greenhouse_effect/enhanced_greenhouse_effect/

<http://epa.gov/climatechange/kids/greenhouse.html>

2. Do some further research on the potential effects of climate change on either Kakadu or The Great Barrier Reef, both visited by thousands of tourists each year. You can start by looking at CANA's overview of the effects of climate change on Australia's natural wonders:

<http://www.cana.net.au/socialimpacts/australia/tourism.html>

i) The Great Barrier Reef. You can start by looking at a report commissioned by WWF-Australia and the Queensland Tourism Industry Council in 2004:

<http://www.wwf.org.au/news/n65/>

ii) Kakadu. You can start by looking at The Age Online's report on icons under threat:

<http://www.theage.com.au/news/national/icons-under-threat-kakadu/2005/11/14/1131951093363.html>

3. For advanced students:

Do some further research on the potential impact of climate change on the health of Australians. Some useful starting points are listed here:

http://www.acfonline.org.au:80/uploads/res/res_ama_acf_full_report.pdf

<http://www.dea.org.au/node/207>