

Study Guide for the Australian Collaboration Fact and Issue Sheet

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: FOURTH ASSESSMENT REPORTS

FOR REVIEW

1 Background

- 1a. What is the *Intergovernmental Panel on Climate Change*?
- 1b. How does the IPCC ensure that its reports are balanced?
- 1c.
 - i) Why do scientists working on IPCC reports focus on “best estimates” rather than less certain possibilities?
 - ii) What impact does this have?
- 1d. How is the scientific work of the IPCC different to the day-to-day work of a “normal” scientist?

2. Working Group 1: The Physical Science Basis

- 2a. Is there any doubt that the globe is warming?
- 2b. Where is global warming now evident?
- 2c.
 - i) What sorts of changes in long-term regional climates have been observed?
 - ii) Have any of these changes occurred in the region of Australia where you live?
- 2d.
 - i) Can we stop global warming altogether or is a certain amount of warming inevitable?
 - ii) Why is it inevitable?
- 2e. Why is it difficult to estimate sea level rises?
- 2f.
 - i) What changes are occurring in the oceans aside from rising levels?
 - ii) What has caused this additional change, and what effect will it have on ocean life forms?

3. Working Group 2: Impacts, Adaptation and Vulnerability

- 3a. Name five future impacts that can be expected in different sectors.
- 3b.
 - i) What are the likely impacts on Australia’s natural environment?
 - ii) What are the likely impacts on human activities in Australia?
- 3c. Will there be significant economic costs from extreme weather events?
- 3d. What would be the impact of the melting of Antarctic and Greenland ice sheets?
- 3e. What factors increase vulnerability to climate change?

4. Working Group 3: Mitigation of Climate Change

- 4a. Do you know what ‘mitigation’ means? Can you work it out from the context? If not, look it up in the dictionary.
- 4b. By how much have global greenhouse gas emissions increased since 1970?
- 4c. Should the reduction of greenhouse gas emissions be regarded as an economic cost or does it provide economic potential?

4d. Do you know what Gross Domestic Product (GDP) is? If not, look it up in an encyclopaedia.

4e. What would be the global cost of emissions reductions in terms of GDP by 2050?

4f. Are there any flow-on benefits from developing the technologies that can help reduce greenhouse gas emissions?

4e. How can government support contribute to effective technology development?

5. The IPCC's Synthesis Report

5a. What shifts in emphasis are found in the IPCC's Synthesis Report?

5b. Draw a rough map of Australia. Shade the regions of Australia that the Synthesis Report confirms will be most affected by climate change.

FOR DISCUSSION

1. A question for advanced class debate:

"Solving the challenges of climate change requires a level of international cooperation unprecedented in world history." Do you agree or disagree with this statement? To what degree is climate change an international problem? What might be the barriers to generating the kind of international cooperation necessary? How can these barriers be overcome? What is the relationship between leadership and consensus in initiating change?

2. A question for advanced class debate:

The Fact Sheet outlines three factors that influence the IPCC's ability to provide the best advice. For example, scientists tend to concentrate on "best estimates" rather than less certain possibilities. Given that the IPCC reports are used by governments worldwide to make important policy decisions, is this cautious approach the best one to take? Should more weight be given to unknown variables such as ice-sheet melting? What are the consequences of erring on the side of caution?

FOR RESEARCH

1. Scan the Fact and Issue Sheet for information about the climate change impacts that will be felt in Australia's regions. Using your school or local library and the internet, do some further research on expected impacts on Australia's ecosystems from climate change. The following site provides a good start:

<http://www.cana.net.au/water/environment/index.html>

2. For advanced students:

The Fact and Issue sheet states: "Choosing an appropriate level of global emissions reduction over time is a risk management process." What does this mean? Do some further research on the economics of climate change. You can start with the Stern Review, a report commissioned by the UK government.

See also the updated report from the Garnaut Review, a report commissioned by Australian governments.