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Impacts: why be concerned?

Humanity is conducting an unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war. The Earth's atmosphere is being changed at an unprecedented rate by pollutants resulting from human activities, inefficient and wasteful fossil fuel use and the effects of rapid population growth in many regions. These changes represent a major threat to international security and are already having harmful consequences over many parts of the globe.

International Conference on the Changing Atmosphere: Implications for Global Security, Toronto, June 1988.

Developments in mainstream scientific opinion on the relationship between emissions accumulations and climate outcomes, and the Review's own work on future 'business as usual' global emissions, suggest that the world is moving towards high risks of dangerous climate change more rapidly than has generally been understood.

Ross Garnaut, Interim Report, *Garnaut Climate Change Review*, February 2008.[1]

The key question for policy-makers (including you the reader) is whether projected climate changes due to greenhouse gas emissions are likely to lead to unacceptable impacts on human and natural systems. The United Nations Framework Convention on Climate Change seeks to avoid 'dangerous interference to the climate system', so we should ask whether what is projected would be dangerous.[2] If so, we must try to avoid it by adopting appropriate policies.

In 1988, despite having rather primitive climate models at their disposal, scientists at a major conference in Toronto reached the rather startling conclusion (quoted above) that human-induced climate change is a major threat to international security. Today we have much more advanced climate models and improved understanding of the effects of climate change on human and natural systems. Successive reports from the Intergovernmental Panel on Climate Change (IPCC) have largely confirmed the 1988 statement by providing much more detail and a better basis.

However, our understanding is still far from complete, and both climate and the systems that are affected are extremely complex. New observations and research findings add, almost weekly, to a growing sense of concern that impacts are already being felt above the background 'noise' of natural climate variability, and that far greater impacts lie