

Part II

Impacts of Climate Change on Growth and Development

Part II considers how climate change will affect people's lives, the environment and the prospects for growth and development in different parts of the world. All three dimensions are fundamental to understanding how climate change will affect our future.

These effects will not be felt evenly across the globe. Although some parts of the world would benefit from modest rises in temperature, at higher temperature increases, most countries will suffer heavily and global growth will be affected adversely. For some of the poorest countries there is a real risk of being pushed into a downwards spiral of increasing vulnerability and poverty.

Average global temperature increases of only 1-2°C (above pre-industrial levels) could commit 15-40 percent of species to extinction. As temperatures rise above 2-3°C, as will very probably happen in the latter part of this century, so the risk of abrupt and large-scale damage increases, and the costs associated with climate change – across the three dimensions of mortality, ecosystems and income – are likely to rise more steeply. In mathematical terms, the global damage function is convex.

No region would be left untouched by changes of this magnitude, though developing countries would be affected especially adversely. This applies particularly to the poorest people within the large populations of both sub-Saharan Africa, and South Asia. By 2100, in South Asia and Sub Saharan Africa, up to 145 - 220 million additional people could fall below the \$2-a-day poverty line, and every year an additional 165,000 - 250,000 children could die compared with a world without climate change.

Modelling work undertaken by the Review suggests that the risks and costs of climate change over the next two centuries could be equivalent to an average reduction in global per capita consumption of at least 5%, now and forever. The estimated damages would be much higher if non-market impacts, the possibility of greater climate sensitivity, and distributional issues were taken into account.

Part II is structured as follows:

- **Chapter 3** begins by exploring how climate change will affect people around the world, including the potential implications for access to food, water stress, health and well being, and the environment.
- **Chapter 4** focuses on the implications for developed countries. Some regions will benefit from temperature rises of up to 1 to 2°C, but the balance of impacts will become increasingly negative as temperature rises.
- **Chapter 5** considers the implications of climate change for developing countries. It explains why developing countries are so vulnerable to climate change – a volatile mix of geographic location, existing vulnerability and, linked to this, limited ability to deal with the pressures that climate change will create.
- **Chapter 6** aims to pull together the existing modelling work that has been done to estimate the monetary costs of climate change, and also sets out the detail of modelling work undertaken by the Review.