

UNFCCC Secretariat A Question of Degree 2009

http://unfccc.int/essential_background/feeling_the_heat/items/2905.php

* **Even the minimum predicted shifts in climate for the 21st century are likely to be significant and disruptive.** Scientific understanding and computer models have improved recently and many projections can now be made with greater certainty.

* **The matter is serious.** Predictions of future climate impacts show that the consequences could vary from disruptive to catastrophic.

*The minimum warming forecast for the next 100 years is more than twice the 0.6° C increase that has occurred since 1900. . . and that earlier increase is already having marked consequences.

*Extreme weather events are striking more often and sea levels have already risen by 10 to 20 cm over pre-industrial averages. Sea level rise will continue for centuries due to the time scales associated with climate processes and feedbacks. In its Fourth Assessment Report, the IPCC states that the contraction of the Greenland ice sheet is projected to continue to contribute to sea level rise after 2100. If this contraction is sustained for centuries, that would lead to the virtually complete elimination of the Greenland ice sheet and a resulting contribution to sea level rise of about 7m.

*Projections also point to continued snow cover contraction, as well as widespread increases in thaw depth over most permafrost regions.

***A future of more severe storms and floods along the world's increasingly crowded coastlines is likely, and will be a bad combination even under the minimum scenarios forecast.**

Furthermore, extra-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns, continuing the pattern observed over the last half century.

* The IPCC also points to very likely increases in the amounts of precipitation in high latitudes, as well as likely precipitation decreases in most sub-tropical land regions.

* Although regional and local effects may differ widely, a general reduction is expected in potential crop yields in most tropical and sub-tropical regions. Mid-continental areas -- such as the United States' "grain belt" and vast areas of Asia -- are likely to dry. Where dryland agriculture relies solely on rain, as in sub-Saharan Africa, yields would decrease dramatically even with minimal increases in

temperature. Such changes could cause **disruptions in food supply** in a world is already afflicted with food shortages and famines.

* **Salt-water intrusion from rising sea levels will reduce the quality and quantity of freshwater supplies.** This is a major concern, since billions of people already lack access to freshwater. Higher ocean levels already are contaminating underground water sources in Israel and Thailand, in various small island states in the Pacific and Indian Oceans and the Caribbean Sea, and in some of the world's most productive deltas, such as China's Yangtze Delta and Vietnam's Mekong Delta.

* **Most of the world's endangered species -- some 25 per cent of mammals and 12 per cent of birds -- may become extinct** over the next few decades as warmer conditions alter the forests, wetlands, and rangelands they depend on, and human development blocks them from migrating elsewhere.

* Higher temperatures are expected to **expand the range of some dangerous "vector-borne" diseases**, such as malaria, which already kills 1 million people annually, most of them children.

A world under stress

* Environmental damage -- such as overgrazed rangeland, deforested mountainsides, and denuded agricultural soils -- means that **nature will be more vulnerable than previously to changes in climate.** In any case, when climate shifts occurred thousands and tens of thousands of years ago, they generally took place more gradually. Natural systems had both more space and more time to adapt.

* Similarly, **the world's vast human population, much of it poor, is vulnerable to climate stress.** Millions live in dangerous places -- on floodplains or in shantytowns on exposed hillsides around the enormous cities of the developing world. Often there is nowhere else for them to go. In the distant past, man and his ancestors migrated in response to changes in habitat. There will be much less room for migration this time around.

* Global warming **almost certainly will be unfair.** The industrialized countries of North America and Western Europe, along with a few other states, such as Japan, are responsible for the vast bulk of past and current greenhouse-gas emissions. These emissions are a debt unwittingly incurred for the high standards of living enjoyed by a minority of the world's population. Yet those to suffer most from climate change will be in the developing world. They have fewer resources for coping with storms, with floods, with droughts, with disease outbreaks, and with disruptions to food and water supplies. They are eager for economic development

themselves, but may find that this already difficult process has become more difficult because of climate change. The poorer nations of the world have done almost nothing to cause global warming yet are most exposed to its effects