

# UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

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## SCIENTIFIC UPDATE ON CLIMATE CHANGE

The mounting evidence that human activities were beginning to alter the basic equilibrium processes of the Earth compelled the House of Commons Standing Committee on Environment in 1989 to launch an exhaustive study of global climate change. This comprehensive investigation resulted in the release of two reports. An interim report, *No Time To Lose: The Challenge of Global Warming*, was tabled to Parliament in October 1990, to be followed by the Committee's detailed report, *Out of Balance—The Risks of Irreversible Climate Change*, in March 1991. Two years have passed since our study and new scientific knowledge has been gained. Elizabeth Dowdeswell, Assistant Deputy Minister, and head of the Atmospheric Environment Service, Environment Canada, told the Committee:

... changes in our knowledge . . . are largely matters of degree, rather than matters of change in direction.<sup>49</sup>

Climate change predictions are now being fine-tuned as more accurate information on cloud formation, ocean effects, plant-growth stimulation, sulphate pollution, carbon dioxide cycle and ozone depletion are accumulated and applied to models. The Intergovernmental Panel on Climate Change (IPCC) has been quick to respond to the new scientific data and in February 1992 issued a supplementary report to the original IPCC document. According to this supplement the major IPCC conclusions are:

- emissions resulting from human activities are substantially increasing the atmospheric concentrations of the greenhouse gases: carbon dioxide, methane, chlorofluorocarbons, and nitrous oxide;
- the evidence for the modelling studies, from observations and the sensitivity analyses, indicate that the sensitivity of global mean surface temperature to doubling CO<sub>2</sub> is unlikely to lie outside the range 1.5° to 4.5°C;
- there are many uncertainties in our predictions particularly with regard to the timing, magnitude and regional patterns of climate change due to our incomplete understanding;
- global mean surface air temperature has increased 0.3° to 0.6°C over the last 100 years;
- the size of this warming is broadly consistent with predictions of climate models, but it is also of the same magnitude as natural climate variability. Thus the observed increase could be largely due to this natural variability; alternatively this variability and other human factors could have offset a still larger human-induced greenhouse warming;

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<sup>49</sup> *Minutes of Proceedings and Evidence of the Standing Committee on Environment.*, Issue No. 48, 30 November 1992, p. 6.