



# CONFRONTING CLIMATE CHANGE: AVOIDING THE UNMANAGEABLE AND MANAGING THE UNAVOIDABLE



**Executive Summary.** Scientific Expert Group Report on Climate Change and Sustainable Development.  
Prepared for the 15th Session of the Commission on Sustainable Development.



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Global climate change, driven largely by the combustion of fossil fuels and by deforestation, is a growing threat to human well-being in developing and industrialized nations alike. Significant harm from climate change is already occurring, and further damages are a certainty. The challenge now is to keep climate change from becoming a catastrophe. There is still a good chance of succeeding in this, and of doing so by means that create economic opportunities that are greater than the costs and that advance rather than impede other societal goals. But seizing this chance requires an immediate and major acceleration of efforts on two fronts: mitigation measures (such as reductions in emissions of greenhouse gases and black soot) to prevent the degree of climate change from becoming unmanageable; and adaptation measures (such as building dikes and adjusting agricultural practices) to reduce the harm from climate change that proves unavoidable.

## Avoiding the Unmanageable

Human activities have changed the climate of the Earth, with significant impacts on ecosystems and human society, and the pace of change is increasing. The global-average surface temperature is now about 0.8°C<sup>1</sup> above its level in 1750, with most of the increase having occurred in the 20th century and the most rapid rise occurring since 1970. Temperature changes over the continents have been greater than the global average and the changes over the continents at high latitudes have been greater still.

The pattern of the observed changes matches closely what climate science predicts from the buildup in the atmospheric concentrations of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and other greenhouse gases (GHGs), taking into account other known influences on the temperature. The largest of all of the human and natural influences on climate over the past 250 years has been the increase in the atmospheric CO<sub>2</sub> concentration resulting from deforestation and fossil-fuel burning. The CO<sub>2</sub> emissions in recent decades (Figure ES.1), which have been responsible for the largest part of this buildup, have come 75% to 85% from fossil fuels (largely in the industrialized countries) and 15% to 25% from deforestation and other land-cover change (largely from developing countries in the tropics).

<sup>1</sup> A given temperature change in degrees Celsius (°C) can be converted into a change in degrees Fahrenheit (°F) by multiplying by 1.8. Thus, a change of 0.8°C corresponds to a change of  $0.8 \times 1.8 = 1.44^\circ\text{F}$ .