

# **Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable**

Background and Summary of the Report of the Scientific Expert Group  
February 2007

The scientific society Sigma Xi and the United Nations Foundation formed the Scientific Expert Group on Climate Change and Sustainable Development (SEG) in 2004 in response to an invitation from the UN Department of Economic and Social Affairs (DESA), in its role as Secretariat to the Commission on Sustainable Development. The broad-based international team of scientists has prepared a report as input for the 15<sup>th</sup> session of the UN Commission on Sustainable Development to be held in May, 2007. The report makes recommendations on steps that can be taken to mitigate and adapt to climate change and explores the intersection of climate change and sustainable development.

Key report highlights include:

- To reduce the risk of crossing a “tipping point” that could lead to intolerable impacts on humans, policy makers should agree to prevent global-average temperature increases of more than 2-2.5°C above the 1750 pre-industrial level. It is still possible to avoid unmanageable changes in the future, but the time for action is now.
  - Temperatures have already risen about 0.8°C<sup>[1]</sup> above pre-industrial levels and are projected to rise of approximately 3-5°C over pre-industrial levels by 2100.
  - Reducing the risk of a climate change tipping point would require very rapid success in reducing emissions of methane and black soot worldwide, and global carbon dioxide emissions must level off by 2015 or 2020 at not much above their current amount, before beginning a decline to no more than a third of that level by 2100.
- The technology exists to seize significant opportunities around the globe to reduce emissions and provide other economic, environmental and social benefits, including meeting the United Nations’ Millennium Development Goals. To do so, policy makers must immediately act to reduce emissions by:
  - Improving efficiency in the transportation sector through measures such as vehicle efficiency standards, fuel taxes, and registration fees/rebates that favor purchase of efficient and alternative fuel vehicles.
  - Improving design and efficiency of commercial and residential buildings through building codes, standards for equipment and appliances, incentives for property developers and landlords to build and manage properties efficiently, and financing for energy-efficiency investments.
  - Expanding the use of biofuels through energy portfolio standards and incentives to growers and consumers.

- Beginning immediately, designing and deploying only coal-fired power plants that will be capable of cost-effective and environmentally-sound retrofits for capture and sequestration of their carbon emissions.
- Some level of climate change and impacts from it is already unavoidable. Societies must do more to adapt to ongoing and unavoidable changes in the Earth's climate system by:
  - Improving preparedness/response strategies and management of natural resources to cope with future climatic conditions that will be fundamentally different than those experienced for the last 100 years.
  - Addressing the adaptation needs of the poorest and most vulnerable nations, which will bear the brunt of climate change impacts
  - Planning and building climate resilient cities.
  - Strengthening international, national, and regional institutions to cope with weather-related disasters and an increasing number of climate change refugees.
- The international community, through the UN and related multilateral institutions, can play a crucial role in advancing action to manage the unavoidable and avoid the unmanageable by:
  - helping developing countries and countries with economies in transition to finance and deploy energy efficient and new energy technologies
  - Accelerating negotiations to develop a successor international framework for addressing climate change and sustainable development.
  - Educating all about the opportunities to adopt mitigation and adaptation measures.

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<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  $0.8 \times 1.8 =$