

# Meeting the Climate-Change Challenge Avoiding the Unmanageable & Managing the Unavoidable

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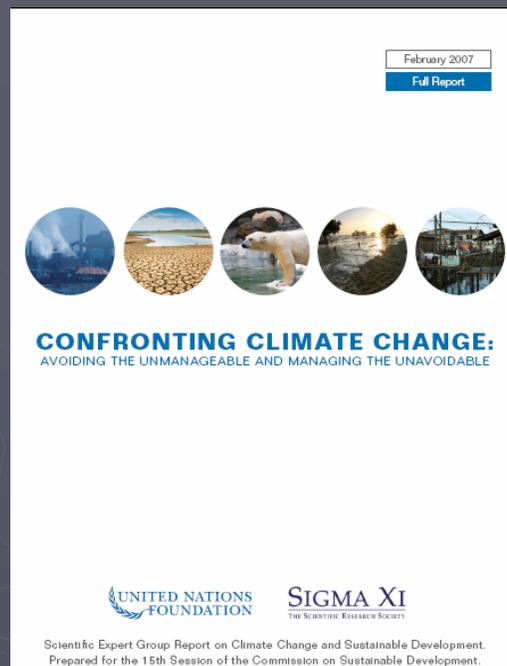
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**THE WOODS HOLE RESEARCH CENTER**

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These remarks draw heavily upon the February 2007 report of the UN Foundation / Sigma Xi Scientific Expert Group (SEG) on Climate Change and Sustainable Development prepared for the 15<sup>th</sup> Session of the CSD.



## Facing the dangers from climate change...

...society has only three options:

- Mitigation, meaning measures to reduce the pace & magnitude of the changes in global climate being caused by human activities.
- Adaptation, meaning measures to reduce the adverse impacts on human well-being resulting from the changes in climate that do occur.
- Suffering the adverse impacts that are not avoided by either mitigation or adaptation.

## Concerning the three options...

- We're already doing some of each.
- What remains to be determined is what the future mix will be.
- Minimizing the amount of suffering in that mix can only be achieved by doing a lot of mitigation and a lot of adaptation.
  - A “mitigation only” strategy won't work because it's already too late to avoid substantial climate change.
  - An “adaptation only” strategy won't work because most adaptation measures become more costly and less effective as the magnitude of the changes to which one is trying to adapt gets larger.

## That's why the SEG gave its report the subtitle...

AVOIDING THE UNMANAGEABLE

AND

MANAGING THE UNAVOIDABLE

i.e.

MITIGATION

AND

ADAPTATION

## SEG mitigation strategy

- Aim to avoid global-average surface temperature increase of more than 2-2.5°C above pre-industrial
- Start with “win-win” solutions – those bringing economic & environmental benefits besides climate-change mitigation -- including:
  - increasing efficiency in the transportation and commercial/residential buildings sectors
  - expanding use of biofuels in transportation
  - avoiding deforestation and promoting reforestation & afforestation
- Add incentives and/or requirements for needed supplemental measures that are costlier:
  - carbon price to promote shift to renewables, nuclear
  - additional incentives or requirements for CO<sub>2</sub> capture & sequestration at coal power plants

## **SEG mitigation recommendations for the UN**

- Promote through the UNFCCC a post-2012 global climate-change regime incorporating
  - concentration targets & emissions trajectories compatible with not exceeding 2-2.5°C above pre-industrial T
  - performance metrics suitable for developing as well as industrialized countries
  - early imposition of prices on CO<sub>2</sub> emissions everywhere
  - mechanisms for CO<sub>2</sub>-revenue transfer from high-income, high-emitting countries & consumers to low-income, low-emitting ones
- Draw on capacities and clout of UN agencies to
  - Promote a 3-4X increase in global public/private investments in energy technology research, development, demonstration, and accelerated deployment, emphasizing partnerships.
  - Advance public & policy-maker education on climate-change impacts & solutions related to the agencies' missions.

## **SEG adaptation strategy**

- Identify & understand key vulnerabilities, including
  - health, food production, water resources, coastal communities, biodiversity
- Expand adaptation research focusing on
  - critical thresholds, multiple stresses, adaptive management, ocean chemistry, opportunities opened by climate change
- Harness & enhance existing institutional capacity for the task of planning for and adapting to climate change
  - with emphasis on UN & other international institutions
  - starting with an inventory of relevant organizations & instruments
- Improve early-warning systems, contingency planning, & information systems for resource management
- Integrate adaptation concerns into social networks

## **SEG adaptation recommendations for the UN**

- Inventory & evaluate the incorporation of adaptation concerns & programs in existing UN organizations
  - identifying needs/opportunities for improvements & additions
  - establishing increased communication & data-sharing
- Conduct vulnerability analyses & monitoring, including
  - focused efforts to identify regions & sectors of high vulnerability
  - assistance to vulnerable regions in monitoring & capacity-building
- Integrate adaptation into ongoing development efforts by
  - using 2006-2007 CSD focus on climate and 2008 International Year of Planet Earth to integrate adaptation into Agenda 21 action plans and national sustainable-development strategies
  - convening experts engaged in existing development information-sharing initiatives to create a global adaptation information clearinghouse

## **Adaptation recommendations (continued)**

- Refocus UN diplomatic, scientific, and technological capabilities to encompass additional adaptation work, such as
  - strengthening the proposed five-year program on adaptation in the UNFCCC, including the efforts on altered cropping patterns, water conservation, germ-plasm preservation, & weather-disaster response
  - accelerating the development of drought-, salt-, and flood-tolerant crop varieties
  - promoting expedited development of improved forecasting models and early-warning systems
- Develop an operational plan for environmental refugees

### **Even more than with mitigation measures, adaptation measures tend to be “win-win”**

- Measures to improve water conservation & water management have great value even in the absence of climate-driven increases in stress on water systems.
- Strengthening public-health and environmental-engineering defenses against climate-linked increases in the geographic extent & virulence of certain diseases will also reduce damage from disease more generally.
- Strengthening buildings and infrastructure against floods, storms, & storm surges expected to increase under climate change provides protection that would be valuable even absent such increases, and also provides protection against other types of extreme events (earthquakes, tsunamis).

### **More broadly...**

*“The best way to address climate-change impacts is by integrating adaptation measures into mainstream sustainable-development and poverty-reduction strategies.”*

- SEG, Confronting Climate Change, p 82

## Some key references

UN Scientific Expert Group on Climate Change & Sustainable Development, *Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable*, United Nations Foundation, February 2007 <http://www.unfoundation.org/SEG/>

Intergovernmental Panel on Climate Change, *Climate Change 2007: Climate Change Impacts, Adaptation, and Vulnerability, Summary for Policy Makers*. April 2007. <http://www.ipcc.ch/>

Intergovernmental Panel on Climate Change, *Climate Change 2007: Mitigation. Summary for Policy Makers*. May 2007. <http://www.ipcc.ch/>