Science panel outlines roadmap for reducing risks from climate change

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The United Nations Foundation (UN Foundation) and Sigma Xi, the Scientific Research Society, released today "Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable," the final report of the Scientific Expert Group on Climate Change and Sustainable Development. The report, prepared as input for the upcoming meeting of the UN's Commission on Sustainable Development (CSD), outlines a roadmap for preventing unmanageable climate changes and adapting to the degree of change that can no longer be avoided.

Two years in the making, the report was written by a panel of eminent scientists from around the world. The panel was co-chaired by Dr. Peter Raven, Director of the Missouri Botanical Garden, and Dr. Rosina Bierbaum, Dean of the University of Michigan's School of Natural Resources and the Environment. The expert team was invited by the UN's Department of Economic and Social Affairs, Secretariat to the CSD, to make recommendations on key mitigation and adaptation needs. This year's 15th Session of the CSD is reviewing national and international efforts on energy and climate change.

"Two starkly different futures diverge from this time forward," the report cautions. "Society's current path leads to increasingly serious climate-change impacts ... The other path ... will reduce dangerous emissions, create economic opportunity, help to reduce global poverty, reduce degradation and carbon emissions from ecosystems, and contribute to sustainability. Humanity must act collectively and urgently to change course through leadership at all levels of society. There is no more time for delay."

"This report defines the seriousness and urgency that must characterize global efforts to respond to the unfolding and far-reaching challenge of climate change. Confronting Climate Change makes clear that we must start immediately to stabilize and then substantially reverse the trajectory of greenhouse gas emissions," said Timothy E. Wirth, President of the United Nations Foundation. "The international community should be grateful that this remarkable panel of scientific all-stars from around the world has provided a roadmap for mitigating and adapting to climate change. And they have told us that there is tremendous economic opportunity in doing so."

"Our report makes clear that the challenge before us is to reduce the risk of climate change resulting in intolerable global impacts," said Peter H. Raven, Past President of Sigma Xi, Presidential Medal of Science recipient and preeminent biodiversity expert. "Our recommendations are designed to help the international community get on a path to stabilizing atmospheric concentrations of greenhouse gases and managing the impacts of climate change. Unlike many reports from scientists, this report gives very clear recommendations for what the international community and nations themselves must do to mitigate and adapt to climate change. These steps will contribute to achievement of the UN's Millennium Development Goals; failing to do so will make those goals much harder, if not impossible to reach."

"It is still possible to avoid an unmanageable degree of climate change, but the time for action is now," said John Holdren, the Teresa and John Heinz Professor of Environmental Policy, Harvard University,

Director of the Woods Hole Research Center, and Chairman of the Board of the American Association for the Advancement of Science. "The global-average surface temperature has already risen about 0.8 degrees C above pre-industrial levels and is projected to rise another 2-4 degrees C by 2100 if CO2 emissions and concentrations grow according to mid-range projections. Prudence dictates limiting the average temperature increase to no more than 2-2.5 degrees C above the pre-industrial level, and our report offers clear recommendations for achieving that goal."

"The world is experiencing climate disruption now and the increases in droughts, floods, and sea level rise that will occur in the coming decades will cause enormous human suffering and economic losses. The poorest are likely the most vulnerable. We imperil our children's and grandchildren's future if we fail to improve society's capacity to adapt to a changing climate," said Rosina Bierbaum, former Acting Director of the White House Office of Science and Technology Policy. "We can manage water better, bolster disaster preparedness, increase surveillance for emerging diseases, make cities more resilient, move vulnerable populations and prepare for environmental refugees, design more drought-tolerant crops, use natural resources more sustainably, and enhance local capacity to cope with a suite of expected changes."

The report covers an overview of the science of climate change; the importance of avoiding the risk of major impacts of climate change; options for mitigation; and steps that can be taken to prepare to adapt to anticipated climate change.

Among the report's key findings are:

-- Exceeding global average temperature increases above 2-2.5 degrees C above the 1750 pre-industrial level would entail "sharply increasing risk of intolerable impacts."

To avoid exceeding the 2-2.5 degrees C limit will require stabilizing atmospheric concentrations at the equivalent of no more than 450-500 ppm of CO2 (compared to about 380 ppm CO2-equivalent today). That in turn requires that global CO2 emissions peak no later than 2015 to 2020 at not much above their current level and decline by 2100 to about a third of that value.

A two-pronged strategy is needed: avoid the unmanageable (mitigation) and manage the unavoidable (adaptation).

-- 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 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 power-plant types that can be affordably retrofitted to capture and sequester CO2.

-- Climate change and impacts from it are already being experienced, and there will be more even if mitigation efforts are successful.
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 new international framework for addressing climate change and sustainable development.
-- Educating all about the opportunities to adopt mitigation and adaptation measures.

A full copy of the report can be downloaded at http://www.confrontingclimatechange.org/.

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