Leading German climate scientist urges UN to act on climate change

"The window of opportunity to avert the most serious impacts of climate change is closing rapidly," Hans Joachim Schellnhuber, director of the Potsdam Institute for Climate Impact Research and chair of the German government's Advisory Council on Global Change, said at a briefing session at UN headquarters in New York today. The session was organized by the United Nations' Department of Economic and Social Affairs. "The climate system has clearly started to drift away from the familiar domain where historic experiences apply," the physician told participants at the briefing, including Ambassadors, Head of the Agencies, senior officials of the UN bodies, civil society and national and international organizations.

Outside that domain, the risk of highly nonlinear changes in environmental conditions, jeopardizing the livelihoods of billions of people worldwide, is sharply increasing. However, Earth system researchers have just begun to identify the planetary boundaries that define the safe operating space for humanity, Schellnhuber pointed out. Current atmospheric concentration of carbon dioxide of around 387 parts per million (ppm) is already exceeding the 'safe' boundary of 350 ppm recently proposed by researchers in the journal *Nature*. The concentration is much higher than the preindustrial concentration of around 280 ppm and probably higher than ever within the last millions of years.

Within the climate system, global warming of more than two degrees Celsius (3.6 degrees Fahrenheit) above preindustrial levels is regarded as a "dangerous interference" that should be avoided. Therefore, the European Union, the G8 and more than one hundred further states adopted the "two degrees guardrail". A temperature increase of more than two degrees Celsius is likely to push components of the Earth's climate system past critical thresholds, Schellnhuber reported, so that these components may "tip" into qualitatively different modes of operation. Climate scientists regard Arctic sea-ice and the Greenland Ice Sheet as the most sensitive tipping elements, but others, like the Amazon rain forest, monsoon systems and the El Niño phenomenon are candidates for surprising society by exhibiting a nearby tipping point.

To limit the risk of disrupting elemental processes in the Earth system and to stop global warming at 2° C, humans could release no more than 750 gigatonnes of carbon dioxide by burning oil, coal, gas and cutting down forests in between 2010 to 2050. Since large amounts of greenhouse gases have already been emitted by industrialized countries, only a small budget of carbon dioxide is left, pointing to the need for large reductions within the near future. The German government's Advisory Council on Global Change has proposed to move this global budget to the forefront of considerations in creating a new global climate treaty, which is due to be negotiated at COP 15 of the UN Framework Convention on Climate Change (UNFCCC) in Copenhagen in December.

At a symposium of Nobel laureates and experts in the field of Earth sciences, economics and policy making in London's St James's Palace earlier this year, the participants signed a Memorandum calling for a global deal on climate change that matches the scale and urgency of the human, ecological and economic crises facing the world today. Participants urge governments at all levels, as well as the scientific community, to join with business and civil society to seize hold of the historic opportunity to transform carbon-intensive economies into sustainable and equitable systems. "We must recognize the fierce urgency of now," Schellnhuber quoted from the memorandum.

The St James's Palace Memorandum
http://www.nobelcause.org/Conclusions/Documents/St%20James%27s%20Palace%20Memorandum%2028%20May.pdf

German Advisory Council on Global Change Special Report: Solving the climate dilemma: The budget approach
http://www.wbgu.de/wbgu_sn2009_en.html