
Distinguished Ladies & Gentlemen!

It is a unique privilege for me to speak before this august gathering at time when the world needs to identify and address some formidable new challenges that face us. The year 2007 saw an unprecedented increase in awareness related to global warming and climate change. This explosion of knowledge and awareness resulted from a number of factors, not the least of which is the release of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The Norwegian Nobel Committee highlighted the threat of climate change to global peace by awarding the 2007 Nobel Peace Prize to the Panel and Mr. Al Gore. But today we also know on the basis of our reports that climate change, if unmitigated, can have serious implications for the economic well-being of human society. It would be convenient to submerge this reality under the financial problems the world is facing this week, but we would indeed be doing so at the peril of ignoring the world's most pressing problems.

The IPCC carries out comprehensive assessments of all aspects of climate change on an inclusive, transparent and objective basis. It accomplishes this by harnessing the best talent from round the globe, following a process of rigorous peer reviews and final acceptance of all reports by governments through a process of consensus.

Why has the latest report made such an impact on the minds of the public and of leaders drawn from different fields of endeavour and different regions of the world? The answer lies in the fact that knowledge and the science related to

climate change have progressed substantially in the last six years since the Third Assessment Report (TAR) was released. Hence, our findings this time are stronger, the gaps in existing knowledge much narrower and uncertainties substantially lower. Some of the major findings from this report are:

1. "Warming of the climate system is unequivocal, as is now evident from observations of increases in average air and ocean temperatures, widespread melting of snow and ice, and rising average sea level".
2. Also much stronger and sharper is the finding related to the human influence on climate change as conveyed in the statement "Most of the observed increase in temperatures since the mid-20th century is very likely due to the increase in anthropogenic GHG concentrations".

However, despite the global community having agreed to combating anthropogenic climate change through universal acceptance of the UN Framework Convention on Climate Change (UNFCCC) as far back as in 1992, global GHG emissions continue to increase, with a substantial jump of 70% between 1970 and 2004. Within a long-term perspective the atmospheric concentrations of CO₂ and CH₄ in 2005 exceeded by far the natural range over the last 650,000 years. The last time the polar regions were significantly warmer than present for an extended period (about 125,000 years ago), reductions in polar ice volume led to 4 to 6 metres of sea level rise.

Global efforts to address the problem remain weak and inadequate, even as changes in climate become more serious. Eleven of the last twelve years rank among the

twelve warmest years in the instrumental record of global surface temperature since 1850. Global average sea level has risen during the 20th century by about 17 cms, while average surface temperature increased by about 0.74 °C. Over the 20th century precipitation increased significantly in eastern parts of North and South America, northern Europe and northern and central Asia, but declined in the Sahel, the Mediterranean, southern Africa and parts of southern Asia. It is likely that heat waves have become more frequent over most land areas. The frequency of heavy precipitation events has increased over most areas. There is observational evidence of an increase in intense tropical cyclone activity in the North Atlantic since about 1970.

We now have much stronger evidence of the impacts of climate change in relation to increases in average surface temperature as well as much greater understanding of these impacts across different regions. Water availability is being impacted by climate change such that while even with current levels of temperature increase water availability in the moist tropics and high latitudes will increase, it is likely to decrease in the mid latitudes and semi arid areas, with increase in droughts. Millions of people would be exposed to increased water stress due to climate change.

Anthropogenic warming could lead to some impacts that are abrupt or irreversible, depending upon the rate and magnitude of climate change. Partial loss of ice sheets on polar land and/or the thermal expansion of seawater over

very long time scales could imply metres of sea level rise, major changes in coastlines and inundation of low-lying areas, with greatest effects in river deltas and low-lying islands. Particularly vulnerable would be the megadeltas of Asia, which include cities like Shanghai, Dhaka and Kolkata. It is estimated that 20-30% of the species assessed would be at increased risk of extinction if increases in global average temperature exceed 1.5 to 2.5°C. As global average temperature increase exceeds about 3.5°C, model projections suggest significant extinctions (40-70% of species assessed) around the globe.

Some of the impacts of climate change are already translating into monetary flows and expenditure as brought out by payments made by the insurance industry. For instance, economic losses attributed to natural disasters have increased from US\$75.5 billion in the 1960s to US\$659.9 billion in the 1990s. Losses to insurers from natural disasters nearly doubled in 2007 to just below \$30 billion globally according to risk records. From 1980 through 2004, the global economic costs of weather-related events totaled \$1.4 trillion (inflation-corrected), of which \$340 billion was insured.

Far more important than the aggregate impacts of climate change on global economic activity are the consequences for some of the most vulnerable communities across the globe. In Africa, between 75 and 250 million people are projected to be exposed to increased water stress due to climate change by 2020. In the same year, in some countries yields from rainfed agriculture could be reduced by up to 50%. Agricultural production, including access to food, in many African countries would be severely compromised. This would further adversely affect food

security and exacerbate malnutrition. Worldwide the health status of millions of people is projected to be affected through, for example, increases in malnutrition; increased deaths, diseases and injury due to extreme weather events; increased burden of diarrhoeal diseases; increased frequency of cardio-respiratory diseases; and other impacts.

The inertia in the climate system is such that even if we were to stabilize the concentration of greenhouse gases (GHGs) in the atmosphere today, climate change would continue for decades. Hence, measures for adapting to the impacts of climate change are urgent and inevitable. However, it is only through appropriate mitigation measures that many impacts can be avoided, reduced or delayed. The IPCC has found that the costs of even stringent mitigation measures would be modest. For achieving a scenario of stabilized temperature increase of 2.0 to 2.4 °C, the cost to the global economy would be around 0.12 % per annum, amounting to a loss of less than 3.0 % of the GDP by 2030 and less than 5.5% by 2050. Comparing the costs of mitigation with avoided damages would require the reconciliation of welfare impacts on people living in different places and at different points of time into a global aggregate measure of well-being. What other forum would be more suitable for exercising its wisdom, knowledge and enlightenment than this one for defining a strategy for global society to act in response to projected climate change?

Such a strategy must be based on stringent mitigation of emissions of GHGs, through policy measures that lead to development and dissemination of low carbon technologies across the board, paramount among which would be an appropriate price on carbon. The benefits from this go beyond the field of climate change, with substantial benefits in the form of higher levels of energy security, lower pollution at the local level and attendant health benefits. At the same time, the global community has to provide adequate resources for creating capacity and

infrastructure for adapting to the impacts of climate change in some of the poorest and most vulnerable communities. Business and industry will, therefore, need to work with governments, civil society and knowledge organizations at an unprecedented level in creating actions and opportunities for themselves and society as a whole. Economic activities will consequently move rapidly towards a low carbon future. Those companies and entities that establish a lead in this endeavour would meet with success in both a business and a societal context. Those that lag behind would suffer the risk of losses in the marketplace and loss of prestige and reputation. The same observation can be applied to nations and governments. There would be dramatic loss of political power and influence for nations that stand unmoved by the growing global consensus for “deep cuts” in emissions of GHGs with a sense of urgency.

If action to tackle the threat of climate change emerges soon, driven by knowledge of where we are heading, as provided by the findings of the IPCC, there would be reason for optimism that other serious challenges facing the world may also evoke similar responses based on rational assessments of problems and knowledge driven solutions. In meeting the threat of climate change we would, therefore, be creating a precedent that would provide the lead in meeting other global challenges that appear prominently on the horizon.