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EDITORIAL

Kyoto and Beyond

By the middle of the next century, the concentration of CO_2 in the atmosphere will be twice preindustrial values, if current trends continue. The Intergovernmental Panel on Climate Change has concluded that the balance of evidence is that Earth's climate will warm as a result, although much uncertainty remains, particularly about local and regional effects. The effects of climate change go well beyond increases in temperature. Floods and droughts could become more common and severe. Sea levels are expected to rise by around 50 centimeters (give or take a factor of 2) over the next century. In the longer term, climate change could interfere with the Gulf Stream, which greatly warms the climate of northern Europe.

Because of the long residence time of CO_2 in the atmosphere, it takes around 100 years for a reduction in emissions to have an effect. The oceans' high heat capacity provides additional inertia. As heat diffuses slowly to the deeper oceans, it will cause further expansion, so even if there were no further change in climate (which would require a 60% decrease in CO_2 emissions below current levels), sea levels would continue to rise for hundreds of years. As when turning a large ship, there are long lags between actions aimed at leveling off CO_2 concentrations and actual stabilization of those concentrations. This is a strong argument for early action.

The economic debate about reducing greenhouse gases tends to be split into two groups. One concludes that strong and early action is essential lest we (in President Clinton's words) "burden our children with our failure to act." The other group is concerned that such action will be expensive, costing jobs and adversely affecting economic competitiveness. The naysayers' arguments deserve attention. But experience with environmental action in other areas, such as reducing sulfur emissions, chlorofluorocarbons, and lead in gasoline, suggests that abatement costs will turn out to be lower than initially feared. Several recent studies, including one by the U.S. Department of Energy, have suggested that significant reductions in greenhouse gas emissions are technically possible and can be made economically feasible, in large part by increasing the use of energy-efficient technologies. Many of these actions will bring other benefits, including increased industrial efficiency and thence competitiveness, and environmental gains such as improved air quality.

The task of reducing emissions falls very broadly on all sectors of society. For example, the United Kingdom's emissions result about evenly from road transport (22%), domestic uses (27%), and industry (28%); a miscellany of other categories (including other transport and heating and other energy use in shops and offices) makes up the remaining 23%. The United Kingdom will hold a national consultation on a climate change program next year. The main features are likely to include more efficient production and use of energy in the main sectors of the economy, further drives to develop combined heat and power schemes and generate more electricity from renewable sources, and measures to create a more sustainable transport system. The United Kingdom already has a policy to increase taxation on road transport fuel at 6% above the rate of inflation each year.

Much of the difference between the negotiating positions of the United States and the European Union (EU) derives from the United States' feeling that it will be harder for it to reach ambitious targets. This is largely because the United States is so far behind in addressing the problem of climate change; its emissions are projected to be around 13% higher in 2000 than in 1990. Per capita carbon emissions in the United States are double the EU average.

We also need to think long. Whatever emissions target for 2010 is agreed upon at the third Conference of the Parties to the UN Framework Convention on Climate Change in Kyoto, Japan, on 1 through 10 December must only be a first step. Decisions that are effective in the short term must not hinder our options for meeting future reduction targets.

The actions needed to address climate change will be impossible to accomplish unless the public is persuaded of the need for them. This is hard, because although the truly serious consequences lie decades in the future, the magnitude of tomorrow's problems depends crucially on today's actions. Our institutions are not well adapted to handling issues such as climate change, on which our long-term fate hinges.

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