POLICY FORUM: CLIMATE CHANGE

Whither After The Hague?

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It is uncommon for major United Nations (U.N.) conferences to fall short of reaching any agreement, but this is what happened at the climate conference in The Hague in November 2000. The reason lies in the diversity of national and commercial interests connected with (and often opposed to) reducing the atmospheric concentration of greenhouse gases (GHGs).

The conference in The Hague aimed to define the criteria by which industrialized countries could fulfill their emission targets agreed under the Kyoto Protocol in December 1997. The failure to reach an agreement should not, however, be seen as the death of the Kyoto Protocol. On the contrary, encouraging signals are emerging from industry. Climate change mitigation and adaptation strategies agreed upon at the next conference, which is likely to be held in July this year, must balance the needs of different nations while keeping in mind that taking no action at all will, in the long run, be more expensive than taking preventive action now.

The conference in The Hague was convened by the UN Framework Convention for Climate Change, which aims to provide incentives for cutting GHG emissions and/or increasing the carbon uptake (sequestration). Negotiating positions of national delegations at The Hague differed widely on how industrialized countries should strike a balance between emission control and sequestration to meet their emissions targets. There was also no agreement on how industrialized countries should divide their mitigation actions between efforts at home and abroad, and how much funding should be provided to developing countries for reducing GHG emissions and building capacity to adapt to climate change.

Despite the lack of agreement on mitigation and adaptation strategies, the talks in The Hague succeeded in building an almost unanimous conviction among governments that potential climate change is a serious problem. There are three major reasons for this conviction. First, intensive climate research and monitoring over the past few years has given scientists greater confidence in their understanding of the causes and effects of global warming. The Intergovernmental Panel on Climate Change (IPCC) projects a potentially devastating global warming of 1.4 to 5.8°C over the 21st century (*1*), primarily as a result of carbon dioxide (CO_2) emissions due to fossil fuel use.

Second, it is now clear that the consequences of ever-increasing atmospheric CO_2 concentrations are likely to have a substantial negative impact on human well-being. Yet without effective emissions control and with moderate global economic growth, some climate models predict a CO_2 concentration of 700 ppm by 2100—two-and-a-half times the preindustrial concentration of 280 ppm (*2*). And it would not stabilize at that point.

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Third, there is evidence that climate is already showing signs of disruption. Average global temperatures continue to set records. The 10 warmest years on record have occurred since 1980, and 1998 was the warmest at least since 1861 (*3*). Extreme weather events such as floods, droughts, and storms seem to be more frequent in many places. In the 1990s, there were ten times as many catastrophic floods worldwide as in the previous decade.

Mitigation Choices

Although most recognize the seriousness of the issue, each country perceives different mitigation policies as fair. Both carbon resources and CO_2 emissions are unevenly distributed around the world. A few countries control most of the conventional carbon resources, and 15 nations emit more than 60% of the world's annual CO_2 emissions (*4*). Should industrialized countries be the first to reduce emissions while developing countries are exempt? Or should all countries be required to make equal cuts in future emissions, despite vastly different per capita emissions and without recognizing previous mitigation efforts?

In December 1997, industrialized countries agreed, under the Kyoto Protocol, to cut GHG emissions by 5.2% between 2008 and 2012 compared with 1990 levels (*5*). The rationale was that industrialized countries must take action first because they are responsible for most of the extra CO_2 now in the atmosphere, and per capita emissions are far higher in industrialized than in developing nations (*6*).

The Kyoto Protocol faces some tough hurdles. For it to be successful, nonfossil energy sources must be available at competitive prices; nations must use clean development mechanism or international emissions trading; revenues from energy taxes or emission permits must be used to offset taxes on labor and capital; firms must respond quickly to increased energy prices and re-allocate their expenditures; and the costs of potential damage from climate change must be factored in when considering the overall costs of mitigation.

Some moderate, but important, changes in the energy industry show that nonfossil energy sources do have a competitive future. Five years ago, nearly all industries were opposed to taking action to combat predicted global climate change. Now, industry is showing a wider range of responses. The natural gas and renewable energy companies generally favor early action to reduce emissions. The Business Council for Sustainable Energy, which includes renewable energy firms as well as large manufacturing and traditional energy companies such as Enron and Honeywell, supports the Clinton Administration's voluntary action plan for cutting GHG emissions. Even in the oil industry, change is in the air. British Petroleum and Royal Dutch/Shell have announced precautionary action to avert climate change. British Petroleum plans to increase sales in solar technologies, currently at $100 million annually, to $1 billion annually over the coming decade. Royal Dutch/Shell will invest more than $500 million over the next 5 years in renewable technologies, primarily solar energy.

It is important to recognize that the environmental benefits of mitigation policies extend far beyond climate-change impacts. For instance, reduced combustion of fossil fuels has other environmental advantages, such as reduced local air pollution, and economic and social implications.

Mitigation at home and abroad. Whether renewable energy technology transfer will succeed depends largely on the next climate conference. Balance between mitigation activities carried out domestically in industrialized countries and those sponsored abroad is key.

An estimated $1.7 trillion will be invested in new electric power generating capacity in developing countries over the next 15 years (*7*). Energy choices made today will

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determine whether this growing market for energy in developing countries will be associated with large increases in GHG emissions. According to the International Energy Agency, fossil fuels are expected to provide 95% of additional global energy demand to 2020 in a business-as-usual scenario.

Developing nations cannot increase the share of zero or near-zero emission technologies on their own. The market in developing countries is too small and uncertain for making the necessary investments in technological innovation in the renewable energy sector, unless industrialized countries open up their markets for such technologies. The industrialized countries must therefore aim to meet at least some of their Kyoto Protocol targets at home, especially in the energy sector. In addition, the mechanisms of the Kyoto Protocol, especially the Clean Development Mechanism (CDM), should be used to help developing countries shift some of their future energy needs toward zero or near-zero emission technologies.

Mitigation through land use and forestry. Mitigation choices also include land use, land-use change, and forestry. Large countries with low population density may be able to fulfill up to 100% or more of their Kyoto Protocol commitments through such carbon sequestration activities (*8*). Small, densely populated countries thus face considerable economic disadvantages, if indeed sequestration options require less investment than the restructuring of national energy sectors.

Disagreements over land-use change and forestry were widely believed to be the main reason for the suspension of the talks in The Hague. Negotiators faced the confrontation between those who view sequestration primarily as a chance to mitigate a maximum quantity of emitted CO_2, and those who consider a need to restrict sinks options qualitatively and aim to reduce their role in carbon mitigation.

The atmosphere does not differentiate whether CO_2 release is regulated by absorbing it in plants or by cutting energy production based on fossil fuels. However, many countries have limited confidence in our present ability to accurately monitor the carbon uptake by plants and soils. Furthermore, any mitigation choice must be measured against overall efficiency and environmental integrity. Environmental standards should be advocated more strongly if a compromise is to be met. However, decisions must be reviewed when new scientific evidence becomes available.

A global net deforestation rate of 9 million hectares per year (*9*) must also be factored in. It is widely acknowledged that land use, land-use change, and forestry options should not replace responsible forest conservation and management policies. Clearly, large industrial plantation schemes and conversion of old-growth forests would not be appropriate. A discounting system for land use, land-use change, and forestry projects must promote long-term benefits under environmental standards that explicitly go beyond the principles stated in the preamble to the Kyoto Protocol.

Adaptation to Climate Change

Even a successful implementation of the Kyoto Protocol will be unable to prevent changes in climate in the near future. The impact of climatic changes caused by human activities may surpass the costs of conventional environmental problems in terms of limiting economic and social progress. Vulnerable countries must be supported in dealing with a rise in sea level or increasing precipitation or drought. Any action taken now has to be compared against the potential costs of such impacts.

Unfortunately, exact figures are not available on damage or adaptation costs. More precise figures will require enormous investments to provide detailed assessments. In the meantime, we have to follow the precautionary principle, recognizing that preventive action is better than a potentially very costly wait-and-see approach.

> **"A discounting system for...land-use change...must promote long-term environmental benefits."**

Some think future climate impacts must be specified before adaptation responses can be devised. This requires that accurate climate prediction at regional or local scales be improved in parallel with identifying the most vulnerable sectors and regions.

The president of the conference at The Hague, Dutch Environment Minister Jan Pronk, proposed substantially increased funding for adaptation activities in developing countries. The proposal included the creation of an adaptation fund to be funded through a levy of 2% charged on the proceeds from the CDM, in addition to existing funding for climate change activities through the Global Environment Facility (GEF). The proposal stated that the total funding for both mitigation and adaptation should reach U.S.$1 billion by 2005. This did not satisfy the developing countries that want to know how much will be allocated for adaptation activities, given the enormous costs associated with adaptation projects in water resource management, coastal zone management, health, and agriculture.

The next climate conference must allocate separate, specific funding for adaptation activities. Delaying action will increase damage costs because climate-induced environmental changes cannot be reversed quickly, if at all, because of the long time scales associated with the climate system. Initial funding through an existing international institution, such as the GEF, should be used to assist vulnerable countries in incorporating adaptation to climate change into their development planning process. The implementation of these projects can then be supported by a dedicated adaptation fund.

Moving Forward

If agreement on the mitigation and adaptation issues discussed above is reached at the next climate conference, it would constitute a firm step toward achieving the objectives of the Kyoto Protocol. It would also provide a solid foundation for merging environmental considerations with economic growth strategies.

Industrialized countries must take the lead. Any agreement reached should not put countries with large areas of land and vegetation at a disadvantage, but needs to at least initially recognize the scientific uncertainties associated with measuring sequestration. Last, the agreement must establish a dependable funding mechanism to support adaptation activities.

The threat of climate change has been decades in the making and will take many years to solve. But each small step in integrating solutions into our economic and social agendas will gradually ensure that society turns this adversity into an opportunity to sustain and increase the wealth of nations in the 21st century.

References and Notes

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