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*by Scott J. Stone**

The Eleventh Conference of the Parties ("COP 11") to the United Nations Framework Convention on Climate Change ("UNFCCC") took place in Montreal from November 29 to December 6, 2005, drawing more than 9,000 participants from governments, UN bodies and agencies, intergovernmental and nongovernmental organizations, and the media.[1]

The COP is an annual event under the UNFCCC, which was negotiated in the two years leading up to the Rio de Janeiro United Nations Conference on Environment and Development (or Earth Summit) in 1992. It entered into force in 1994 and has been ratified by 188 countries, making it one of the most universally supported international agreements and the world's major treaty regime dealing with climate change.[2] Each year, Parties to the Convention (*i.e.* those states that have ratified, accepted, approved, or acceded to the treaty) meet at the COP to foster and monitor its implementation and continue negotiations on how best to combat climate change.[3]

This year's COP enjoyed the added significance of being the site for the first Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol ("COP/MOP 1"). The Kyoto Protocol to the UNFCCC was negotiated in 1997 and has endured a controversial and troubled existence since the United States withdrew its support in 2001. The Protocol could only enter into force if at least 55 Parties to the Convention had ratified it, including enough industrialized countries to cover 55 percent of that group's greenhouse gas ("GHG") emissions (as of 1990). Ratification by the Russian Federation in November 2004 allowed the Protocol to enter into force 90 days later on February 16, 2005.[4]

The Protocol places legally binding limits on GHG emissions by Annex I countries, which are industrialized countries that were members of the Organisation for Economic Co-operation and Development ("OECD") in 1992 and countries with economies in transition (the "EIT Parties"), which includes the Russian Federation, the Baltic States, and several Central and Eastern European states.[5] If fully implemented and enforced, the Protocol will reduce GHG emissions by 5.2 percent of 1990 levels by 2012.

The most important development at the COP 11 was the agreement by all parties (except the United States and Australia) to continue to negotiate future binding limits on GHG emissions after the Protocol expires in 2012. The United States initially opposed any future commitments on GHG emissions, but eventually withdrew its objection on the conference's final day of negotiations.[6] This cleared the way for the parties to move forward with post-Kyoto plans.

The United States can still hinder these efforts, given that as the world's leading GHG emitter, meaningful action on climate change hinges on its full participation. But with only seven years remaining under the Protocol, moving forward with post-Kyoto talks at this year's climate conference was seen as critical, with concern growing that any further delay would allow the United States to argue that there would not be enough time to negotiate new emissions targets.[7] The United States could then call for an abandonment of mandatory cuts and instead focus on its preferred solution to climate change: technology transfer.[8]

It is not yet clear what the extent of the post-Kyoto emissions limits will be, but in order to have a chance at staving off the worst impacts of climate change by 2100, the cuts must be significantly more than the Protocol's 5.2 percent reduction.

The original standard for action to combat climate change is found in the UNFCCC's Article 2, which calls for the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[9]

Although "dangerous anthropogenic interference" lends itself to a variety of interpretations, there are several frequently offered targets that, if achieved, may avoid the worst effects of climate change. Targets are most commonly expressed in terms of GHG emission reductions, temperature changes, and atmospheric carbon dioxide ("CO_2") concentrations. Each type of target relies on complex climate science and mathematical calculations and at best can only offer a probable outcome.

One commonly used benchmark is to limit global average temperature increase to two degrees Celsius above pre-industrial averages (*circa* 1750s).[10] The corresponding reductions in GHG emissions and limits on atmospheric carbon concentration to achieve this target depend on a series of factors, many of which can only be estimated within a certain range. One estimate, in a July 2005 report released by Allianz Group and the World Wildlife Fund, suggested that limiting global average surface temperature increase to two degrees Celsius would require a reduction in GHG emissions of 60 to 80 percent from current levels by 2050 (from almost seven billion tons of carbon emissions per year to under 2.5 billion per year).[11]

One of the main criticisms of the Protocol is that binding limits on GHG emissions, even its modest 5.2 percent reduction, will be too costly. But the Protocol's true value is its regulatory mechanisms that will make future limits on GHG emissions economically feasible.

This is why the second-most significant accomplishment at the COP 11 was the implementation of the Marrakech Accords, a set of technical guidelines and regulations on the Protocol's key regulatory mechanisms – International Emissions Trading, Joint Implementation ("JI"), and the Clean

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Development Mechanism ("CDM"). The Marrakech Accords were negotiated at the COP 7 in 2001 and are sometimes referred to as the "Kyoto Rule Book." In effect, they render the Protocol fully operational.

International emissions trading provides for portions of Annex I countries' emissions allowances to be traded on an international carbon market in order to achieve emissions reductions in the most cost-effective manner. JI allows Annex I countries to receive credit for emissions reductions from investments in other Annex I countries. And the CDM works in a manner similar to Joint Implementation, except that it applies to investments in all non-Annex I countries (*e.g.* developing countries).

The Protocol's regulatory mechanisms are essential to achieving its emissions targets because, as market-based regulatory tools, they enable countries to achieve their targets in the most cost-effective manner possible.

The advantage of binding emissions targets and market-based mechanisms is that identify the most cost-effective emissions reductions. For example, the European Union's Emissions Trading System ("EU ETS") entered into force in January 2005 in order to allow EU Member States to meet their projected obligations under the Protocol. The goal of the EU ETS is to reduce GHG emissions by about eight percent of 1990 levels by 2012. The European Commission has reported that the costs to industry will range between €2.9 – €3.7 billion, which is less than 0.1 percent of gross domestic product in the EU.[12] By contrast, achieving the same reduction without an emissions trading system is estimated to cost approximately twice as much.

This is in part because market-based mechanisms take advantage of the "Porter Hypothesis" advanced by Michael Porter and Claas van der Linde – where the application of strict but flexible environmental standards fosters innovations in technology whose value meets or exceeds the costs of compliance.[13] In using emissions trading, JI, and CDM, the Protocol creates economic incentives to invest in new technologies that cut emissions.

These economic incentives are sometimes described as a technology "pull," where the regulatory limits on emissions create a commercial demand for new technology. This is in contrast to a technology "push," which is simply the outcome of research and development ("R&D"). Traditional R&D has already yielded a series of technologies that, if applied, can drastically lower emissions. For example, an influential article by Princeton researchers Stephen Pacala and Robert Socolow argues that a portfolio of technologies now exists to meet the world's energy needs over the next fifty years while still limiting atmospheric CO_2 to a trajectory that avoids a doubling of the preindustrial concentration.[14] Although no "wedge" (that is, a type of new technology) is a credible candidate for doing the entire job (or even half the job) by itself, the portfolio as a whole is large enough that not every wedge has to be used. The wedges range from improved energy efficiency and conservation, such as higher fuel economy standards and the use of hybrid vehicles, to sequestering CO_2 emissions in depleted underground oil and gas reservoirs.

Thus the technology is already here. What is needed are international legal regimes to create a market "pull" that encourages their wider application. The importance of Kyoto, therefore, is its ability to help policymakers better understand the relationship between regulation and innovation and how market-based mechanisms like emissions trading, JI, and CDM spur profitable methods of reducing emissions. After all, it seems clear that to achieve emissions reductions as drastic as 60 to 80 percent by mid-century, the most attractive policy response is to develop ways to make these reductions profitable.

The business community is already catching on, with numerous Fortune 500 companies pledging to reduce emissions and invest in environmentally-friendly technologies. BP, for instance, found that it was able to reach its internal target of reducing emissions by ten percent below its 1990 levels without cost. Indeed, the company added around $650 million of shareholder value because the bulk of the reductions came from the elimination of leaks and waste.[15] Dozens of other major companies have announced GHG reduction targets and have undertaken new initiatives to combat climate change.[16] Additionally, many have called on the Bush Administration to take stronger action on climate change and begin to regulate GHG emissions.[17]

Significant obstacles to tackling climate change still remain, but the progress made at the COP 11 in Montreal appears to be a meaningful step in the right direction.

ENDNOTES:

[1] Earth Negotiations Bulletin, Summary of the Eleventh Conference of the Parties to the UN Framework Convention on Climate Change and First Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol: 28 November-10 December 2005, Earth Negotiations Bull. (Int'l Instit. for Sustainable Dev'ment), Vol. 12, No. 291, Dec. 12, 2005, http://www.iisd.ca/vol12/enb12291e.html (last visited Jan. 26, 2006).

[2] UN FRAMEWORK CONVENTION ON CLIMATE CHANGE ("UNFCCC"), CARING FOR CLIMATE: A GUIDE TO THE CLIMATE CONVENTION AND KYOTO PROTOCOL (2005), http://unfccc.int/resource/docs/publications/caring2005_en.pdf (last visited Jan. 26, 2006).

[3] UNFCCC, *id.*

[4] For a complete list of the countries that have ratified the Kyoto Protocol, *see* http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf (last visited Jan. 26, 2006). As of April 29, 2005, 150 states and regional economic integration organizations have deposited instruments of ratifications, accessions, approvals, or acceptances. The total percentage of Annex I Parties emissions is 61.6 percent.

[5] The "Kyoto basket" of GHGs covers the following six gases: carbon dioxide ("CO_2"); methane ("CH_4"); nitrous oxide ("N_2O"); hydrofluorocarbons ("HFCs"); perfluorocarbons ("PFCs"); and sulphur hexafluoride ("SF_6").

[6] Fiona Harvey, *US Agreement Paves the Way for Fresh Climate Change Talks*, FIN. TIMES, Dec. 12, 2005, at 7.

[7] Fiona Harvey, *Heavy Weather: How Procrastination and Politics Hobble Action on Climate Change*, FIN. TIMES, Dec. 6, 2005, at 25.

[8] *Id*. This approach is best embodied by the Asia-Pacific Partnership for Clean Development and Climate, a separate agreement announced in July

ENDNOTES: Comment on COP 11 to the UNFCCC *Continued on page 67*

2005 between the United States, Australia, India, Japan, China, and South Korea that promotes voluntary targets and technology sharing.

[9] *See* UNFCCC, May 9, 1992, 1771 U.N.T.S. 107, 31 I.L.M. 849, 851 (1992) (entered into force Mar. 21, 1994), *available at* http://unfccc.int/essential_background/convention/background/items/1349.php (last visited Jan. 26, 2006).

[10] *See generally,* MEETING THE CLIMATE CHALLENGE: RECOMMENDATIONS OF THE INTERNATIONAL CLIMATE CHANGE TASKFORCE (2005), *available at* http://www.whrc.org/resources/published_literature/pdf/ByersetalInstPubPolRes.1.05.pdf (last visited Jan. 26, 2006); H. GRASSL, J. KOKOTT, ET AL., GERMAN ADVISORY COUNCIL ON GLOBAL CHANGE, CLIMATE PROTECTION STRATEGIES FOR THE 21ST CENTURY: KYOTO AND BEYOND (2003), http://www.wbgu.de/wbgu_sn2003_engl.pdf (last visited Jan. 26, 2006); Paul Baer, Probabilistic analysis of climate stabilization targets and the implications for precautionary policy, The American Geophysical Union Annual Meeting (Dec. 17, 2004); J. Hansen, *Defusing the global warming time bomb*, SCI. AM. 290(3), 2004, at 68-77, http://pubs.giss.nasa.gov/docs/2003/2003_Hansen.pdf (last visited Jan. 26, 2006).

[11] Allianz GROUP & WORLD WILDLIFE FUND, CLIMATE CHANGE AND THE FINANCIAL SECTOR: AN AGENDA FOR ACTION (2005), *available at* http://www.allianz.com/Az_Cnt/az/_any/cma/contents/847000/saObj_847265_Allianz_WWF_Climate_Change_Study_2005.pdf (last visited Jan. 26, 2006); The Intergovernmental Panel on Climate Change ("IPCC") has predicted an average global rise in temperature of 1.4 degrees Celsius (2.5 degrees Fahrenheit) to 5.8 degrees Celsius (10.4 degrees Fahrenheit) between 1990 and 2100, *see* IPCC, THIRD ASSESSMENT REPORT (2001), http://www.ipcc.ch/pub/un/syreng/spm.pdf (last visited Jan. 26, 2006).

[12] *See* EUROPEAN COMMISSION, EU EMISSIONS TRADING: AN OPEN SCHEME PROMOTING GLOBAL INNOVATION TO COMBAT CLIMATE CHANGE (Jan. 2005), *available at* http://europa.eu.int/comm/environment/climat/pdf/emission_trading2_en.pdf (last visited Jan. 26, 2006). More information on the EU ETS is available at http://europa.eu.int/comm/environment/climat/emission.htm (last visited Jan. 26, 2006).

[13] Michael E. Porter & Claas van der Linde, *Toward a New Conception of the Environment-Competitiveness Relationship*, J. OF ECON. PERSPECTIVES, vol. 9, no. 4, 1995, at 97-118; M.N. Murty & S. Kumar, *Win-win opportunities and environmental regulation: testing of porter hypothesis for Indian manufacturing industries*, J. OF ENVTL. MGMT. 67, 2003, at 139-144. (2003); Glen Dowell, Stuart Hart, Bernard Yeung, *Do Corporate Global Environmental Standards Create or Destroy Market Value?,* 46 MGMT. SCI. 8, 1059-1074 (2000) *in* MAKING LAW WORK: ENVIRONMENTAL COMPLIANCE & SUSTAINABLE DEVELOPMENT (DURWOOD ZAELKE, DONALD KANIARU, & EVA KRUŽÍKOVÁ EDS. 2005); *see also* STEPHEN O. ANDERSEN & DURWOOD ZAELKE, INDUSTRY GENIUS: INVENTIONS AND PEOPLE PROTECTING THE CLIMATE AND FRAGILE OZONE LAYER (2003).

[14] S. Pacala and R. Socolow, *Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies*, SCIENCE, vol. 305, Aug. 13, 2004.

[15] John Browne, *Beyond Kyoto*, FOR. AFF., July/Aug. 2004 (Lord Browne of Madingley is Group Chief Executive of BP plc.).

[16] *See* Pew Center on Global Climate Change website, GHG Reduction Targets, http://www.pewclimate.org/companies_leading_the_way_belc/targets/index.cfm (last visited Jan. 26, 2006).

[17] *Companies Call on Bush for emissions guidelines*, INT'L HERALD TRIB., June 7, 2005, http://www.iht.com/articles/2005/06/06/technology/btk.php (last visited Jan. 26, 2006); *see also* Press Release, U.S. House Committee on Science, U.S. Industry Taking Steps to Reduce Greenhouse Gas Emissions (June 8, 2005), http://www.house.gov/science/press/109/109-86.htm (last visited Jan. 26, 2006).