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SPEECHES

THE MONTREAL OZONE TREATY: IMPLICATIONS FOR GLOBAL WARMING

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In September 1987, representatives of countries from every region of the world reached an agreement unique in the annals of international diplomacy—an accord which many observers had believed would be impossible to achieve. President Reagan described this treaty as "the result of an extraordinary process . . . of international diplomacy . . . [and] a monumental achievement."[1]

The Montreal Protocol on Substances that Deplete the Ozone Layer[2] establishes international controls on certain chemicals that destroy the stratospheric ozone layer and aggravate the greenhouse effect. It is this ozone layer that protects life on earth from the harmful effects of radiation and which contributes to stability of the global climate. By their action, the signatories at Montreal sounded a death knell for an important part of the international chemical industry, with implications for billions of dollars in investment and hundreds of thousands of jobs in such related sectors as food, plastics, transportation, electronics, cos-

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1. President Signs Protocol on Ozone-Depleting Substance (text of President's statement, Apr. 5, 1988), *reported in* 88 DEP'T. ST. BULL., at 30 (June 1988).

2. Montreal Protocol on Substances that Deplete the Ozone Layer, *adopted and opened for signature* Sept. 16, 1987, *reprinted in* 26 I.L.M. 1541 (1987) (entered into force Jan. 1, 1989) [hereinafter Montreal Protocol].

metics, fire prevention, and health care.[3] The negotiators weighed the social and economic costs of replacing substances which contribute in many ways to modern standards of living, against hypothetical dangers based on analysis at the frontiers of modern science. All this was done *before* there was measurable evidence either of ozone depletion or of actual damages from increased radiation or from climate change.

At Montreal, nations agreed for the first time on a worldwide regime for specified reductions of potentially damaging chemicals. This was not a response to an environmental disaster, such as Chernobyl or Seveso, but rather *preventative* action on a global scale. Moreover, the treaty did not take the timid path of controlling through best available technology, which has been a traditional accommodation to economic interests. Rather, it boldly established firm target dates for emissions reductions, with full knowledge that the technologies for accomplishing these goals did not yet exist.

The Montreal Protocol was a landmark because it symbolized a fundamental change both in the kinds of problems facing the modern world and in the way the international community can approach these problems. This new generation of issues reflects the interconnectedness of life and its natural support systems on this small planet, where localized activities can have global consequences, and where dangers are slow in developing, long-term in their effects, and not readily reversible. The concept is not obvious: a perfume spray in Paris helps destroy an invisible gas 6 to 30 miles above the earth, and thereby contributes to deaths from skin cancer and extinction of species half a world distant and several generations in the future.

While international law is relatively well equipped for dealing with traditional transboundary environmental problems, the ozone issue represented uncharted territory in its worldwide scope, scientific uncertainties, and costs and risks extending far beyond normal policymaking time horizons. The negotiators confronted a threat which could affect every nation and all life on earth. The consequences were potentially disastrous, yet they could not be observed or predicted with certitude. The Montreal Protocol is thus a global prototype for decisionmaking under uncertainty: international consensus was forged on a balance of probabilities, where the risks of waiting for more complete evidence were finally deemed to be too great.

More than a year later, the events at Montreal ironically have ac-

3. *See* Ogden, *The Montreal Protocol: Confronting the Threat to Earth's Ozone Layer*, 63 WASH. L. REV. 997, 1012 n.98 (1988) (discussing the global economic impact that the Montreal Protocol will have upon the chemical industry).

quired an air of inevitability. It all seems easy in retrospect. Some activists have even complained that the treaty was too little and too late. But memories are short: for the greater part of this period and even after the actual negotiations began, many governments still had doubts over such fundamental questions as the possible degree of future damage to stratospheric ozone, the extent to which industrial products were responsible, the prospective growth of demand for these products, the significance of any adverse effects from ozone layer depletion, and the length of time before critical harm might occur.

A unique international process of scientific, technical, and economic analysis and assessment, reinforced by extensive informational and diplomatic initiatives of the United Nations Environmental Programme (UNEP) and the United States government, played an essential role in developing the consensus for concerted international action. The ozone accord broke new ground in its reconciliation of complicated scientific, economic, and political factors, in its handling of long-term risks, in its innovative provisions, and in the negotiating process itself.

Greenhouse warming is an even more complex issue than protecting the ozone layer, with many more contributing factors, more wide-ranging and uncertain consequences, and more economically painful choices. Nevertheless, despite the difficulties, global cooperation will be essential if efforts both to limit the magnitude and rate of temperature rise and to adapt to the effects of climate change are to be effective.

The ozone protocol may well serve as a prototype for new diplomatic approaches to emerging global issues such as climate change. There was no single prime cause for the success at Montreal. Rather, it was a combination of many key factors and events that made the agreement possible. Analysis of these elements offers insight into a possible methodology for dealing on an international level with climate change.

First, the ozone history demonstrates the importance of building scientific consensus, by mobilizing the best possible scientists and the most advanced technological resources in a cooperative international effort. The development of a commonly accepted body of data and analysis and the narrowing of the ranges of uncertainty were instrumental in facilitating a political consensus among negotiating parties initially far apart in their positions.

In the process, close collaboration between scientists and government policymakers is crucial. This synergy contributed to the irresistible logic of the American position on ozone and greatly strengthened the persuasiveness of U.S. negotiators. The United States government provided substantial financial resources for the necessary scientific research, and U.S. policymakers paid attention to the results. The United

States government's negotiating stance demonstrated to other countries that it was prepared to accept considerable near-term inconvenience for the sake of a future good.

Second, in order to mobilize the political will of nations, public opinion must be adequately informed. Here again, individual scientists and national academies have a substantial role, but their findings must be translated and disseminated. International organizations such as UNEP and the World Meteorological Organization (WMO), through publications and other activities, undertook major educational efforts on the ozone issue. Individual governments, such as Canada, Finland, the Federal Republic of Germany, Norway, Sweden and the United States, were also particularly active in keeping their own and other countries' public opinion informed. Legislative hearings can be important for airing scientific opinion and analyzing policy alternatives: the United States Congress held a number of public hearings on ozone and climate change during 1987 and 1988,[4] and the German Bundestag convened a special commission on atmospheric issues which received well-publicized testimony from many scientists.[5]

Nongovernmental organizations can also make a considerable educational contribution, as well as promote research and legislation. The media, particularly press and television, obviously play a vital role in bringing issues before the public, thereby stimulating political interest. The temptation to overstate the case in order to capture public attention, however, needs to be resisted. Exaggerated claims have a way of backfiring and providing ammunition to those who want to obstruct action. The case for ozone protection was built step-by-step and generally avoided invoking apocalypse. Credibility is well worth preserving, even though it may require patience.

Third, the ozone protocol process itself offers instructive insights for approaching other global issues. The idea of disaggregating a complex problem is valuable: climate change, for example, has so many aspects that it is impossible to deal with everything at once. The innovative fact-finding process which led to the Montreal agreement—the infor-

4. *See, e.g., Ozone Layer Depletion: Hearing Before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 100th Cong., 1st Sess. 2 (1987); *U.S. Participation in International Negotiations on Ozone Protocol: Hearing Before the Subcomm. on Human Rights and Int'l Orgs. of the House Comm. on Foreign Aff.*, 100th Cong., 1st Sess. 2 (1987); ENVIRONMENTAL PROTECTION AGENCY, TRANSCRIPT OF PROCEEDINGS: PUBLIC HEARING ON STRATOSPHERIC PROTECTION, No. A-87-20, at 12 (Jan. 7-8, 1988) (discussing the usage of CFCs and their destructive effect on the ozone layer).

5. *Vorsorge zum Schutz der Erdatmosphaere*, Federal Republic of Germany Bundestag, Enquete-Kommission, Bonn (1988).

mal scientific and economic workshops which preceded formal negotiations—is relevant and replicable.

The concept of an initial framework agreement, similar to the 1985 Vienna Convention on Protecting the Ozone Layer,[6] is a useful model: it permits governments to agree in principle that a problem exists and to launch coordinated scientific research to develop further data as a guide to policy. The next step, to correspond with the Montreal treaty, would be individual implementing protocols on specific aspects of the problem. It is worth noting that the ozone accord is itself an example of a partial solution to global warming, because CFCs may contribute twenty percent or more of the heat-trapping effect.

Fourth, the mediating function of an international organization can be critical. UNEP's catalytic role in the events leading up to the ozone agreement has obvious implications for the future. In the informative and consensus-building stage, during the negotiations themselves, and later in the protocol implementation phase, UNEP was and will remain indispensable. A great deal of the credit for the treaty should go to the personal efforts of the executive director of UNEP, Dr. Mostafa Tolba, an Egyptian scientist who—I am very pleased to announce—has just been re-elected for another four-year term. Tolba's strong presence was a major factor, commanding respect from all sides for his commitment and his sensitivity to national interests, particularly in the Third World.

UNEP went far beyond a traditional secretariat function: it was a leader in mobilizing data and informing world public opinion and, through Tolba, it was a driving force in achieving the eventual consensus. It was UNEP, encouraging Third World governments which might otherwise have had only marginal interests in participating in the process, that made the protocol truly global in scope. UNEP provided an objective international forum, free from the irrelevant and time-consuming debates on extraneous political issues which have often marred the work of other UN bodies. It was, in short, the very model of how a UN agency should operate in a complex international negotiation.

Fifth, an individual country's commitment and policies can have a profound influence on the course of an international negotiation. The many scientific and diplomatic initiatives of the United States, reinforced by actions of the United States Congress, environmental groups, and industry, were crucial in achieving the Montreal accord. Within the European Community, the ascendency of Germany toward the end of the process was a significant factor.

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6. *See* Vienna Convention for the Protection of the Ozone Layer, *adopted and opened for signature* Mar. 22, 1985, *reprinted in* 26 I.L.M. 1516 (1987).

A sixth and final lesson from Montreal derives from the protocol itself: a dynamic and flexible instrument with many innovative features. Based on periodic scientific, economic, and technical assessments, the treaty can be adapted to evolving conditions.[7] There are even provisions for emergency meetings of parties in case of unexpected and fast-breaking developments. The protocol is not a static solution, it is an ongoing process.

Many of the treaty's provisions represent creative resolutions of complicated equity and technical problems, which can point the way for future protocols: the trigger mechanism for entry into force, the fixed target dates for the reductions, the process for reopening the timetable and reduction goals, the sensible transitional provisions for developing countries, the two-stage voting to reflect large stakeholders' interests, the treatment of trade and nonparties.

Montreal was not a radical treaty: it tried fairly to distribute economic burdens and it was sensitive to special situations, and for all of this, it should prove to be a lasting and precedent-setting model for international cooperation.

In conclusion, we have learned that this planet is more vulnerable than most of us had thought. Science is showing how activities of modern industrial societies, driven by consumer demands and by burgeoning Third World populations, can alter fragile natural balances which are not necessarily self-correcting. The Antarctic ozone hole conveys a philosophical warning that the atmosphere, upon which all life depends, is capable of surprises: there is a potential for large and unexpected, rather than incremental change. We can no longer pretend that nothing is happening, or that the planet will somehow automatically adjust itself to the billions of tons of man-made pollutants to which it is being subjected.

Mostafa Tolba has described the Montreal Protocol as "the beginning of a new era of environmental statesmanship."[8] The ozone treaty reflected a realization that nations must work together in the face of global threats, that if some major actors do not participate, the efforts of others will be vitiated. In the realm of international relations, there will always be uncertainties: political, economic, scientific, psychological. The Protocol's greatest significance may be its demonstration that

7. *See, e.g.*, Montreal Protocol, *supra* note 2, art. 2, paras. 9 and 10 (providing for adjustment of the following variables: the ozone depletion rates for each substance, consumption and production reduction rates for the parties, and the addition or deletion of controlled substances from the Annex to the Protocol).

8. Tolba, *The Ozone Agreement—And Beyond*, 14 ENVTL. CONSERVATION 290 (1987).

the international community is capable of undertaking complicated cooperative actions in the real world of ambiguity and imperfect knowledge. The Montreal Protocol can be a hopeful paradigm of an evolving global diplomacy, one wherein sovereign nations find ways to accept common responsibility for stewardship of the planet and for the security of generations to come.