

Kaleidoscope

International Efforts to Protect the Global Atmosphere: A Case of Too Little, Too Late?

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On 2 May 1989, at the first meeting of the parties to the Montreal Protocol on Substances that Deplete the Ozone Layer,¹ all represented governments and the European Community signed a declaration of intent to phase out key ozone-depleting substances by the year 2000, to expand the range of controlled chemicals and to tighten the Protocol's time-schedule for compliance.² Thus, barely one and a half years after the signing of the Montreal Protocol and only a few months after its entry into force,³ the parties to the Montreal Protocol already generally accepted the idea that protection of stratospheric ozone requires renewed international regulatory action. This declaration of intent, known as the "Helsinki Declaration", is now expected to lead to a formal amendment of the Protocol at the second meeting of the parties in 1990. In the meantime, while preparatory

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¹ Montreal Protocol on Substances that Deplete the Ozone Layer, 26 ILM (1987) 1550. For a background discussion of the Protocol, see J. Brunée, *Acid Rain and Ozone Layer Depletion: International Law and Regulation* (1988) 226-48; see also Bulska, 'The Protection of the Ozone Layer Under the Global Framework Convention', in C. Flinterman, B. Kwiatkowska & J. Lammers (eds.), *Transboundary Air Pollution: International Legal Aspects of the Co-operation of States* (1986) 281 and generally Nanda, 'Stratospheric Ozone Depletion: A Challenge for International Environmental Law and Policy', 10 *Michigan Journal of International Law* (1989) 452. The first meeting of the conference of the parties to the Vienna Convention for the Protection of the Ozone Layer preceded the first meeting of the parties to the Montreal Protocol by a few days. For a summary of the former, see *Report of the Conference of the Parties on the Work of its First Meeting*, U.N. Doc. UNEP/OzL.Conv.1/5 (1989).

² See Helsinki Declaration on the Protection of the Ozone Layer, 2 May 1989, Appendix I to *Report of the Parties to the Montreal Protocol on the Work of Its First Meeting*, U.N. Doc. UNEP/OzL.Pro.1/5 (1989) [hereinafter *Report of the Parties*].

³ The Protocol entered into force on 1 January 1989. As of 1 July 1989, the number of parties to the Protocol – states and regional economic integration organizations – was 40.

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work on amending⁴ and fine-tuning⁵ the Protocol is proceeding under the auspices of the United Nations Environmental Program (UNEP), the European Community⁶ and concerned states acting individually⁷ are already taking steps in line with the Helsinki Declaration.

The rapidity of the international diplomatic response to evolving scientific knowledge about an increasingly ominous threat to the ozone layer⁸ and the Helsinki Declaration's adoption by consensus might inspire optimism about the likelihood of a timely solution to the ozone depletion problem. However, remarkable as the present momentum of the multilateral diplomatic process⁹ may be, many states continue to harbour serious

⁴ The Helsinki meeting resulted in the establishment of a special working group on amendments.

⁵ Articles 6 and 11 of the Protocol expressly provide for the review and assessment of control measures taken and for their adjustment or supplementation whenever deemed necessary. Additionally, Article 8 of the Protocol calls upon the parties to consider procedures and institutional mechanisms for determining non-compliance with the Protocol. In response to the latter, at the Helsinki meeting the parties set up an *ad hoc* working group of legal experts which is to report to the Secretariat by 1 November 1989. See *Report of the Parties, supra* note 2, at 15-16; and *Note on Procedures and Institutional Mechanisms for Determining Non-Compliance with the Montreal Protocol on Substances that Deplete the Ozone Layer* (prepared by the Secretariat), U.N. Doc. UNEP/OzL.Pro.LG.1/2 (1989).

⁶ See, e.g., *EC Commission Recommendation of 13 April 1989 on the Reduction of Chlorofluorocarbons by the Aerosol Industry* (89/349/EEC), OJ (1989) L 144/56.

⁷ For example, in the United States the Environmental Protection Agency has proposed curbing emissions of methyl chloroform and carbon tetrachloride; see 'EPA Advance Notice of Proposed Rule-Making, Protection of Stratospheric Ozone', 54 *Federal Register* (1989) 15228. In addition, early in 1989, Canada took the lead internationally by announcing plans for stricter standards than called for in the Montreal Protocol. See 'Ottawa to Step Up Elimination of Ozone-Depleting Chemicals', *The Globe and Mail* (21 February 1989) at A1, col. 4.

⁸ The "ozone hole" phenomenon which was first observed over Antarctica has now also been discovered over the Arctic; see Hofman *et al.*, 'Stratospheric Clouds and Ozone Depletion in the Arctic during January 1989', 340 *Nature* (1989) 117. There appears to have been a slight decrease in stratospheric ozone in other latitudes as well. See Bowman, 'Global Trends in Total Ozone', 239 *Science* (1988) 48. However, some of these findings may involve a number of as yet poorly understood variables, such as the solar cycle or temperature feedback from rising atmospheric concentrations of carbon dioxide or methane. See Watson *et al.*, *Present State of Knowledge of the Upper Atmosphere 1988: An Assessment Report* (1988) 5.

In any event, a thinning of the ozone layer appears to result in increased ultra-violet radiation in the spectrum that is biologically damaging ("UV-B"); see, e.g., Roberts, 'Does the Ozone Hole Threaten Antarctic Life?', 244 *Science* (1989) 288. An intenser flux of ultra-violet rays, in turn, is likely to affect human health (immune suppression, increase in skin cancers and eye cataracts), as well as ambient air quality (increase in oxidized compounds).

⁹ The Helsinki meeting – which convened as required by the Vienna Convention and the Montreal Protocol – has been only the latest in a series of international diplomatic conferences on preserving the global atmosphere that seemingly take place at ever shorter intervals. Earlier meetings that addressed either the ozone problem and/or global warming include: the "London Conference on Saving the Ozone Layer" in March 1989; the "Conference on Global Warming and Climate Change" in New Delhi, in February 1989; the "International Meeting of Legal and Policy Experts on Protection of the Atmosphere" in Ottawa, in February 1989; and the Toronto meeting on "The Changing Atmosphere: Implications for Global Security" in June 1988. In 1988, states agreed to set up the Intergovernmental Panel on Climate Change (IPCC). The IPCC has since met twice, namely in February and June 1989.

reservations about the fairness of the international regulatory approach.¹⁰ Consequently, the outlook for a global regime that is effective in the sense of "protect[ing] human health and the environment against adverse effects resulting from modifications of the ozone layer",¹¹ remains uncertain. Significantly, the fairness issue also presents itself in the context of rallying states to develop an international strategy to counter the risks of global warming, except that it does so in a vastly more challenging manner.

Notwithstanding the international ozone regime's admirable flexibility¹² and its call for remedial action on the basis of mere evidence of a risk of harm rather than of actual damage,¹³ environmentalists have faulted the international ozone regime for not going far enough in guarding against the consequences of ozone depletion.¹⁴ The Helsinki Declaration has been the subject of similar criticism. Questions are being raised about the environmental risks of some of the substances that industry is now developing for use as substitutes for the chemicals to be banned under an amended Protocol.¹⁵ In addition, questions are being raised about the adequacy of the proposed amendments.¹⁶ Moreover, these concerns, however legitimate they may be, are surely compounded by the slowness with which the international community has been reacting to developing countries' call for concrete steps towards an equitable distribution of the costs of curbing ozone depleting substances world-wide.

Redressing the threat to a globally shared natural resource such as the ozone layer inevitably raises an international equity problem. On the one hand, the benefits of ozone depleting substances have largely been limited to industrialized countries. Thus, North America, Europe and Japan presently account for more than 80% of the total consumption of the controlled chemicals. The per capita consumption in developed economies is in many cases more than ten times the per capita consumption in most developing nations.¹⁷ On the other hand, as the pollution-carrying capacity of the atmosphere is being exhausted, a globally effective ban on ozone depleting substances appears warranted to avoid globally distributed environmental, public health or economic detriments due to increased UV-B radiation. Costs associated with such a ban, for example those related to the development/acquisition of alternative technology, the use of often more expensive non-depleting CFCs and CFC substitutes, or the process of industrial/economic transi-

¹⁰ As embodied in the Vienna Convention on the Protection of the Ozone Layer, text in 26 ILM (1987) 1529 and the Montreal Protocol.

¹¹ Preamble of the Vienna Convention, *supra* note 10.

¹² For an indication of the highly flexible process for amending Protocol regulations, see *supra* note 5. On this point see Lang, 'Luft und Ozone - Schutzobjekt des Völkerrechts', 46 *Zeitschrift für ausländisches Recht und Völkerrecht* (1986) 261, 278-80.

¹³ For an indication of the acclaim that this "risk-based" regulatory approach has generally elicited, see, e.g., Benedick, 'A Landmark Global Treaty at Montreal', 2 *Transboundary Resources Report* (No. 2) (1988) 3.

¹⁴ See, e.g., Wirth, 'Climate Chaos', 74 *Foreign Policy* (1989) 3, 14.

¹⁵ For example, some have criticized industry for increasingly relying on HCFCs as substitutes for fully halogenated compounds, which are to be banned, even though HCFCs "contribute some destructive chlorine to the stratosphere"; see 'U.S. Seeks Tighter Rules on Ozone Protection', *Chemical & Engineering News* (1 May 1989) 8; see also "'Safe" CFCs Will Destroy Ozone, Too', *New Scientist* (1 September 1988) 39.

¹⁶ See 'Nations Back Tougher CFC Measures but Decline to Set Up Climate Fund', *BNA Environmental Rep., Current Developments* (1989) 121.

¹⁷ See *Open-Ended Working Group of the Parties to the Montreal Protocol, Final Report, Second Session of the First Meeting, Nairobi, 28 August - 5 September 1989*, U.N.Doc. UNEP/OzL.Pro.WG.1(2)/4, 26 (1989).

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tion generally, would be incurred by the international community at large, that is, by all states, irrespective of whether, or to what extent, each has contributed to the emergence of the ozone problem in the first place. "Blameless" developing countries might be additionally penalized. Their costs of compliance with such a ban would most likely be much higher relative to their benefits than in the comparable cost/benefit calculus for developed countries¹⁸ whose activities account primarily for the problem.

The Montreal Protocol seeks to diffuse the international equity issue by making specific allowances for developing countries' compliance with the Protocol's restrictions on production and consumption of controlled substances.¹⁹ More significantly, it invites parties to facilitate developing countries' access to "environmentally safe alternative substances and technology" and to support their use of such substances and technology through the establishment of "subsidies, aids, credits and insurance programmes."²⁰

So far, the call for financial transfers from North to South has, however, largely remained unanswered, although states do continue to pay lip-service to the need for such assistance. For example, at Helsinki, states initially agreed to a reference to "appropriate funding mechanisms" for developing countries to ease the economic burdens that the Protocol entails.²¹ However, in the end countries backed away from the proposal for an ozone layer fund. Instead, the meeting decided merely to set up a working-group on financial mechanisms for the implementation of the Protocol.²²

The lack of tangible progress in resolving the underlying equity problem threatens the two key determinants for an effective international ozone regime, namely universal state participation²³ and timeliness in achieving the necessary international co-operation. Many developing countries have come to consider an ozone layer protection fund paid for by developed countries to be the key to an effective international ozone regime. Thus, at the 1989 London Conference on Saving the Ozone Layer, and then again, at the Helsinki meeting, several developing nations insisted on the establishment of an international assistance fund as a precondition for becoming parties to the Protocol.²⁴ Pending implementation of the fund concept, key developing countries such as India and China have chosen to stay on the side-lines.²⁵ Yet, without full co-operation from developing countries no international regime can assure the protection of the ozone layer.

¹⁸ See *Report of the Informal Working Group of Experts on Financial Mechanisms for the Implementation of the Montreal Protocol*, Geneva, 3-7 July 1989, U.N.Doc. UNEP/OzL.Pro.Mech.1/Inf.1, 7, para. 20 (1989).

¹⁹ Art. 5, para. 1 of the Protocol provides for a 10-year period of grace for compliance, provided that the annual calculated level of consumption of controlled substances in the developing country concerned is less than 0.3 kg/capita, and provided such delay serves to meet basic domestic needs only and does not raise the annual calculated level of consumption beyond 0.3 kg/capita.

²⁰ See Art. 5, paras. 2 and 3.

²¹ See Helsinki Declaration, *supra* note 2.

²² See *Report of the Parties*, *supra* note 2, at 20, para. 13.

²³ At least in the sense of a qualified universality, *i.e.*, participation by all those states which presently are, or have the potential to become, significant producers of ozone depleting substances.

²⁴ See Barinaga, 'London Ozone Meeting Wins Some Hearts', 338 *Nature* (1989) 101; see also Welsh, 'Getting Serious about Ozone', 17 *Development Forum* (No. 3) 1, at 15 (May-June 1989).

²⁵ Indeed, as of the end of June 1989, only 10 out of 124 countries generally classified as "developing countries" had ratified the Montreal Protocol; *Report of the Informal Working Group of Experts*, *supra* note 18, at 4.

Indeed, absent applicable international controls, production and consumption of CFCs are expected to increase steeply in the hold-out countries concerned.²⁶

The outlook for a quick resolution of the present stale-mate over implementation of plans for the ozone fund is uncertain. The open-ended working group on financial mechanisms has begun work on the report/recommendations to be submitted to the parties of the Montreal Protocol at their second meeting.²⁷ However, the fact that the financial transfers to be effected are likely to involve considerable amounts of money,²⁸ that grants of this kind would have to be additional to already existing development aid if the plan is to be acceptable to developing nations,²⁹ and that such funding would be precedent-setting in controlling the risks of global climate change, suggest that international agreement on an ozone layer fund might not be as readily forthcoming as the gravity of the risk associated with ozone depletion might warrant.

Time is of the essence because of the very long (up to 100 years) residence time of CFCs in the upper atmosphere. Even an immediate phase-out of CFCs will not reduce harmful impacts on the ozone layer for decades to come. Besides, ozone depleting substances such as CFCs constitute potent "greenhouse gases."³⁰ Therefore, any delay in curbing their emissions is not only likely to lead to a further thinning of the protective ozone layer, but may also increase the risk of global climatic instability.

It is in the context of the global warming problem that the compensation of potential opportunity costs incurred by developing countries presents itself as a truly daunting international issue. Assuming that present assumptions of a correlation between increased atmospheric concentrations of greenhouse gases due to human activities³¹ and global

26 See Usher, 'The Montreal Protocol and Developing Countries', in *Our Planet* (No. 1) (March 1989) 5.

27 See *Report of the Informal Working Group of Experts*, *supra* note 18.

28 As a preliminary figure, it was initially estimated that international transfers to developing countries could amount to 400 million dollars per year. See *Protecting the Global Atmosphere: Funding Mechanisms, Interim Report to Steering Committee for Ministerial Conference on Atmospheric Pollution and Climate Change (The Netherlands, November 1989)* (27 June 1989) 10. However, the Informal Working Group of Experts on Financial Mechanisms for the Implementation of the Montreal Protocol rejected this "ball-park" figure as being based on much too optimistic assumptions about the costs involved. See *Report of the Informal Working Group of Experts*, *supra* note 18, at 6, para. 14. A study aiming at a somewhat more reliable estimate of developing countries' costs of compliance with the Montreal Protocol is now underway; its results are expected to be available at the meeting of the open-ended working group on financial mechanisms at the end of August 1989. See *id.* Annex IV, 2.

29 See *Report of the Informal Working Group of Experts*, *supra* note 18, at 7, para. 19.

30 See, e.g., *United Nations Environment Programme & the Beijer Institute, the Full Range of Responses to Anticipated Climatic Change* (April 1989) 3 [hereinafter *Full Range of Responses*].

According to a draft study by researchers at the U.S. National Aeronautics and Space Administration's Goddard Space Flight Center, CFCs and related gases account for about one-quarter of man-made emissions contributing to the greenhouse effect; 'Draft Report Attributes One-Quarter of Greenhouse Effect to CFC Emissions', *BNA International Environmental Reporter, Current Reports* (1989) 340.

31 These activities include both anthropogenic releases of gases such as carbon dioxide, methane, nitrous oxides and CFCs, as well as human interference with the global carbon cycle due to deforestation, etc. See, e.g., *Full Range of Responses*, *supra* note 30, at xi-xxii; see also Houghten & Woodwell, 'Global Climatic Change', 260 *Scientific American* (No. 4) (1989) 3.

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warming are correct,³² international remedial action would significantly depend on support from Third World countries in order to be effective.³³ Developing countries typically experience high growth in energy consumption³⁴ and frequently engage in land use practices involving massive deforestation³⁵ or the burning of savannas³⁶ to facilitate agriculture, live-stock development or industrialization. Moreover, many of these nations are presently committed to exploiting domestic natural resources using methods that could further aggravate the global warming problem. A case in point is China which stands poised, ready to tap its vast reserves of coal notwithstanding the fact that such development will entail a very significant contribution to the carbon-dioxide concentration in the atmosphere³⁷ and thus will possibly intensify the global warming problem.

To dissuade the Chinese government and the governments of similarly positioned countries from following a "conventional" path to development, that is, the course followed by the developed industrial countries, or, in other words, to persuade them to accept significant restraints on national development options, is going to be an inordinately challenging task for a number of reasons. First, notwithstanding the long-term global environmental risks involved, many underdeveloped nations will find it extremely difficult to resist the promise of economic, social and domestic political gains associated with developing "sensitive" natural resources, even if these gains are thought to be non-sustainable in the long run. Second, such development is often viewed as the epitome of national sovereignty³⁸ and it is being justified as a matter of international

32 Although prudence dictates that at least for purposes of basic planning and policy formulation the existence of such a link be assumed there is no certainty yet that a global warming trend – if uncyclical long-term temperatures changes are indeed discernible – is attributable to the greenhouse effect. The issue of inherent uncertainties underlying various global warming scenarios was recently highlighted in the course of congressional testimony by James Hansen, Director of NASA's Goddard Institute for Space Studies. See 'Scientist Says U.S. Agency Altered His Testimony on Global Warming', *New York Times* (8 May 1989) A1, col. 3; see also 'Hansen vs. the World on the Greenhouse Threat', 244 *Science* (1989) 1041. For an indication of the many uncertainties involved, also see Hilleman, 'Global Warming', *Chemical & Engineering News* (13 March 1989) 25.

33 See Houghten & Woodwell, *supra* note 31, at 44; Wirth, *supra* note 14, at 17.

34 See, e.g., *International Institute for Environment and Development & World Resources Institute, World Resources 1987* (1987) 96-97. Much of this growth might be eliminated by conservation measures or the use of alternative sources of energy. However, implementation of such a modified energy development policy is likely to be a capital-intensive undertaking, hence again raising the issue of international transfer payments.

35 See, e.g., 'Amazon Setters Turn Forests to Ash in Name of Progress', *New York Times* (11 October 1988) 1, col.1; Willemsen, 'Der Dschungel brennt. Zum Beispiel Indonesiens: Über die langsame Vernichtung des zweitgrößten Urwalds der Erde', *Die Zeit (Nordamerika Ausgabe)* No. 23 (June 1988) 15. As to the implications of deforestation for global warming, see, for example, Woodwell, *et al.*, 'Global Deforestation: Contribution to Atmospheric Carbon Dioxide', 222 *Science* (1983) 1081.

36 As to incidence of this practice and its possible implications for global warming, see 'High Ozone and Acid-Rain Levels Found over African Rain Forests', *New York Times* (19 June 1989) 1, col. 1.

37 The commitment to developing the national coal reserves was recently reaffirmed by the Chinese delegate in July 1989 at a meeting of the Intergovernmental Panel on Climate Change (IPCC) in Nairobi.

38 Most recently, in the context of global expressions of concern over development policies in Amazonia, the right to decide national development policy was defended by the Brazilian gov-

equity. The equity argument is, of course, inspired by the fact that the threatening consequences of past natural resource development in and by industrialized countries are now being invoked as the reason for preempting many Third World nations from exercising their "natural" development options. Finally, developed countries might experience difficulties in mustering the requisite political will to offset the potentially huge costs that developing nations are likely to incur by complying with internationally advocated restraints on domestic development strategies.³⁹ Indeed, nothing short of an unprecedented international redistribution of wealth might be necessary to secure the full co-operation of developing countries in countering the threat of global climate change.

Intergovernmental Panel on Climate Change and international conference activities testify to a growing concern in the international community over the magnitude and complexity of the potential task of managing the risks of global warming. Encouragingly, there is evidence of movement on a key issue, namely the re-interpretation of international entitlements.⁴⁰ If a Third World country incurs opportunity costs by forgoing a development option to preserve environmental resources that are of special interest to the world at large, the country should be entitled to compensation. The fact that national restraint would also be in the long-term interest of the developing country itself should not detract from the right to compensation as a matter of principle. Conversely, developing countries must recognize that the international community has a legitimate interest in development practices that are capable of affecting the global atmosphere, and that their development options might be subject to limitations for the sake of protecting the larger societal good.

Still, by defining appropriate conceptual parameters, such international recognition, however essential, merely constitutes a first step on the long road towards facilitating a potential solution to the problem in the sense of either averting climate change altogether, or minimizing its consequences should it prove to be inevitable. The evident delay in fashioning an international agreement on the, comparatively speaking, infinitely less problematical ozone layer protection fund, does not augur well for the international community's ability to meet the analogous challenge of funding the necessarily massive financial transfers to developing countries, if and when international action to reduce the risk of global warming will be called for.

The accelerating pace of international or transnational initiatives to protect the global atmosphere is in itself hardly a cause for optimism. Whether the international community will rise to the challenge of global change implicit in the threat of global

ement as the very essence of national sovereignty. See, e.g., 'It's Our Forest to Burn if We Want to', *The Economist* (11 March 1989) 42.

39 It should be pointed out that in the infinitely more manageable context of compensating developing countries for opportunity costs incurred in consequence of their participation in the Montreal Protocol, India recently calculated that it would have to be paid two billion dollars. See 'India Wants \$2 Billion from Others to Sign Ozone Depletion Montreal Protocol', *BNA International Environmental Reporter, Current Reports* (1989) 389.

40 For example, in the so-called "Declaration of The Hague" of 10 March 1989, signatory states agreed to promote the principle "that countries to which decisions taken to protect the atmosphere shall prove to be an abnormal or special burden, in view, *inter alia*, of the level of their development and actual responsibility for the deterioration of the atmosphere, shall receive fair and equitable assistance to compensate them for bearing such burden..." For further details on this development, see Handl, 'International Law and the Protection of the Atmosphere', *ASIL Proceedings* (1989); and Handl, 'Environmental Protection and Development in Third World Countries: Common Destiny - Common Responsibility', *20 NYU Journal of Int'l Law & Politics* (1988) 603.

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climatic instability remains an open question. It should be clear, however, that unless the international campaign is firmly grounded in the primacy of inclusive, global community interests over exclusive, national interests, and is driven by an unrelenting commitment to seek equity among nations, present international efforts to save the atmosphere could well be a case of too little, too late.