
THE INTERNATIONAL OZONE REGIME: CONCESSIONS AND LOOPHOLES?

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An effective and widely accepted regime for the protection of the ozone has not emerged due to the negotiating stalemate between developed and developing countries. Katrien Vorlat explains the mechanics and impact of ozone depletion, discusses the negotiation stalemate and argues for market incentives and GATT consistent sanctions to create an effective regime.

Alterations of the ozone layer exemplify humanity's ability to irreversibly destroy the environment. Two decades ago scientists discovered the harmful effect of chlorofluorocarbons (CFCs) on the ozone layer and predicted dire consequences for all life on earth were the ozone layer to be depleted. Destruction of the ozone layer is an environmental problem of new dimensions. Traditionally, environmental pollution was tangible and was local or regional in scale. As the depletion of the ozone layer is an environmental problem with global causes and ramifications, a global solution is warranted.

Previously some countries tried to address the ozone depletion problem solely by domestic means. In the 1970's, the U.S. banned the use of CFCs in aerosols, the most common use of the chemicals at the time. This unilateral approach was unsuccessful for two reasons: First, it put domestic industry at a competitive disadvantage on the world market; Second, it did not substantially reduce worldwide CFC emissions. It has become painfully clear that the problem of ozone depletion requires a multilateral solution.

The establishment of an international ozone regime constitutes a challenge which requires a high degree of international participation and cooperation among developed and developing countries, yet these two groups have divergent interests. These various and conflicting interests have resulted in international environmental agreements to address the ozone problem that contain too many loopholes and concessions to be effective.

Two factors complicate negotiation of international environmental agreements. First, countries disagree on development strategies. In international fora, developing countries assert that environmental concerns are a pretext for restraining economic development vital to the alleviation of poverty and industrialization. Such thought is based on an outmoded perceived dichotomy between development and the environment. A prosperous economy requires a sound environment; long-term prosperity will be an impossible goal if irrepa-

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rable harm to the environment continues in order to facilitate short-term economic gains. Developing countries must acquire new technology and environmentally sound substitutes for CFCs. This results in a second bottle-neck in the establishment of an effective international regime. Most substitutes and technologies are developed in the Western world by private companies. As a result of high research and development costs, private companies are unwilling to provide substitute products and alternative technologies to the developing countries free of charge, and the developing countries often do not have the hard currency to purchase them. The resulting stalemate is therefore a direct outgrowth of the divergent interests of developing and developed nations.

In addition to their reluctance to provide substitutes and alternative technologies free of charge, developed countries have used their superior economic and political power to wrest concessions whenever the international community debates limiting CFC emissions. At the negotiations for the Montreal Protocol on Substances that Deplete the Ozone Layer,¹ developing nations obtained an additional 10-year moratorium, giving them until 2010 rather than the year 2000, to ban CFC production. In addition, the European Community (EC) won the right to be considered as a single entity in calculating whether their CFC emissions fall within the prescribed limits. This allows individual high-polluting countries to exceed CFC-emission limits as long as low-polluting countries can make up the difference. These concessions, which also included relaxing restrictions on emissions for state planned economies, suggest that without a new international system of environmental regulation, any further restrictions on the emission of ozone depleting chemicals will be offset by additional concessions. These concessions would be necessary to secure agreement and compliance with the proposed restriction.

One possible solution to this problem would be an international structure embodying two objectives: stringent environmental regulations as well as financial and technological assistance to developing countries. Instead of resorting to concessions to induce worldwide participation and compliance, trade sanctions could be invoked against non-participating countries; such sanctions would not violate the principles of free trade incorporated in the General Agreement on Tariffs and Trade (GATT).

This article is divided into two parts. The first part explains the causes and effects of ozone depletion, illustrating the urgent need for action on an international scale to regulate CFC emissions and to switch to CFC-substitutes. Implementation of market incentives would accelerate this conversion process. Increasing the production cost of CFCs and their downstream products would provide a powerful incentive for producers to shift to cheaper, less polluting substitutes and products. Two specific mechanisms could help to achieve these

1. Montreal Protocol on Substances that Deplete the Ozone Layer, September 16, 1987, published in *International Legal Materials* (Washington, D.C.: The American Society of International Law, 1987), 1541. The Montreal Protocol was amended in London 1990. Amendment to the Montreal Protocol on the Substances that Deplete the Ozone Layer, published in *International Legal Materials* (Washington, D.C.: The American Society of International Law, 1991), 537.

objectives: a pollution-added tax and transferable emission units. The second part of the article describes the regulatory regime for ozone depleting substances established in the various international treaties. The framers of the various international instruments made concessions to both developed and developing countries which undermine the effectiveness of the international regime.

The Problem of Ozone Layer Depletion

The Chemistry of the Atmosphere

The atmosphere is a relatively thin protective gas blanket covering the earth which serves two functions of importance for planetary life: it filters the sun's ultraviolet radiation and protects the earth from its most dangerous wave lengths; and functions as a heat blanket, providing the heat necessary to maintain the stability of the stratosphere. Nearly two decades ago, Rowland and Molina postulated that the release of CFCs and halons harm the atmosphere.² Since that time, scientific investigations have confirmed their predictions.

The ecosystem must be protected from excessive solar ultraviolet radiation; otherwise, all species will face dire consequences. This phenomenon is caused by the depletion of the ozone layer, a result of man-made chemicals released into the atmosphere. Ozone, an oxygen molecule with three atoms instead of the normal two, is found throughout the atmosphere, but especially within the stratosphere. Ozone molecules are formed by the collision of solar ultraviolet rays with ordinary oxygen molecules. These collisions create free oxygen atoms that recombine with ordinary oxygen molecules to form ozone molecules. These ozone molecules are split again by solar energy-stimulated reactions. The natural balance of processes cyclically producing and breaking down ozone has been altered by human activities which introduce ozone destroying chemicals into the atmosphere.³

CFCs and halons are man-made chemicals with attractive characteristics, since they have significant commercial applications. Inert and immensely stable, neither flammable nor poisonous, easy to store and cheap to produce, they were a miracle discovery of the twentieth century. They are used extensively in foam-blown plastics, refrigerators, air-conditioning, as electronics industry solvents and as aerosol propellants. Their chemical properties, while so useful on earth, also attack the ozone layer. Both CFCs and halons have high ozone depleting potential (ODP) and as a result have been the targets of regulatory action to limit their use. These chemicals slowly percolate into the stratosphere, where they are photolyzed by ultraviolet light and release chlorine radicals.

2. Sherwood F. Rowland and R. Molina, "Stratospheric Sink for Chlorofluoromethanes: Chlorine Atom Catalyzed Destruction of Ozone," *Nature*, Vol. 249, (1974), 810-814.

3. Ivar Isaksen and Frode Stordal, "The Influence of Man and the Ozone Layer: Readjusting the Estimates", *Ambio*, Vol. 9, 1980, 10.

This free floating chlorine chemically attacks and destroys ozone.⁴ This destructive process has significant implications for human beings, plants, aquatic organisms and human-formulated materials.⁵

Environmental Effects of Ozone Depletion

Ultraviolet radiation emitted by the sun reaches the atmosphere in a range of varying wavelengths. Its most destructive radiation, long wave length UV light, or ultraviolet-B, is reflected back into space by the protective ozone layer. An ozone reduction of one percent in the stratosphere entails a two to three percent ultraviolet-B increase,⁶ jeopardizing human health as well as the environment in various ways.⁷

The link between ultraviolet radiation and skin cancer is well established.⁸ The Environmental Protection Agency (EPA) estimates 153,587,100 additional cases of fatal melanoma cancers in the U.S. by the year 2075 if CFCs are not controlled. Also, epidemiological studies have identified a correlation between the prevalence of cataracts in humans and the flux of ultraviolet radiation reaching the earth's surface.⁹ Excessive radiation attacks human and animal immune systems, increasing human susceptibility to infectious diseases.¹⁰ Depletion of the ozone adversely effects the food we eat and the air we breathe. Crop yields of several kinds of agricultural plants may be affected.¹¹ Moreover, larval forms of several important seafood species might suffer appreciable die-off, thereby endangering the seafood cycle.¹² Experiments documented the inhibition of the photosynthesis of phytoplankton, which is a natural link of CO₂. Ultraviolet radiation is also implicated in the degradation of polymers¹³ and the formation of tropospheric ozone (city smog).¹⁴ In addition to ozone depletion, CFCs also contribute to global warming by absorbing energy that is emitted by the earth back into the atmosphere.¹⁵ Because of their two-fold capacity to attack the earth's atmosphere, CFCs clearly pose a threat to the

4. *Ibid.*, 9; See also Molina and Rowland, 811-812.

5. Michael D. Lemonick, "The Heat is On : Chemical Wastes Spewed into the Air Threatens the Earth's Climate", *Time*, 9 October 1987: 59.

6. James Gleick, "Treaty Powerless to Stem Growing Loss of Ozone", *New York Times*, 20 March 1988, A1.

7. Organization for Economic Cooperation and Development, "Fluorocarbons : An Assessment of Worldwide Production, Use and Environmental Issues," (Washington, D.C.: OECD Publications and Information Center, 1976), 8.

8. This is disputed in the media because cancers take decades to develop and ozone decreases are a recent phenomenon. Some argue that the increase of skin cancers is a result of other factors such as changes in life-style which result in more sun exposure.

9. Environmental Protection Agency, "Assessing the Risks of Trace Gasses That Can Modify the Stratosphere," (Washington, D.C.: Office of Air and Radiation, U.S. Environmental Protection Agency, 1987), 7-11.

10. *Ibid.*, 7-24.

11. *Ibid.*

12. *Ibid.*

13. *Ibid.*, 7-33.

14. *Ibid.*, 7-28.

15. R.A. Warrick, E.M. Barrow and Tom M.L. Wigley, *The Greenhouse Effect and Its Implications for the European Community* (New York: Cambridge University Press, 1990), 9.

global environment. A solution to the problem of ozone depletion depends on a quick abatement of the amount of chlorine reaching the stratosphere.

Substitutes

CFC are emitted from a variety of sources. The major ones are: air conditioners, refrigerators, solvents in electronics industry, and plastic foams. New applications of CFCs continue to be introduced, and uses yet unforeseen could become additional sources of future emissions. Chemical producers consider hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFC's) to be feasible alternatives to CFCs used in refrigerators and air-conditioners.¹⁶ HCFCs and HFCs have no significant effect on atmospheric ozone. The former has no chlorine, so it cannot contribute to ozone depletion. The latter has only a 0.01 ozone depleting potential.¹⁷ Extensive use of these chemicals does, however, delay the recovery of the ozone layer. The London Amendments to the Montreal Protocol considered them "transitional chemicals."¹⁸ The signatories of this international agreement also agreed that by the year 2040 the question of their continued use should be reexamined.¹⁹ The latter provision cautions producers against relying on these substances as appropriate substitutes and investing too heavily in them. These substances are, at best, an interim solution.²⁰

The chemical industry is working feverishly on substitutes in anticipation of a huge future demand.²¹ Dupont, a leading CFC producer in the world, developed and patented CFC substitutes for use in refrigerators and air conditioners and is constructing new production plants to market them by 1993.²², Vol.22, No.18, August 30, 1991, 4.

Strategies

The effects of ozone depletion on human health and the environment are no longer contested in the scientific world. In order to prevent further damage to the ozone layer, individuals must change their lifestyles for the benefit of future generations. Changes will inevitably incur costs for society. Although there is no dispute that CFCs and halons should be regulated, there is no agreement on the extent or appropriate mechanism of regulation.

Technological alternatives could lead to reduced CFC emissions. These include substitution, containment, recovery, and recycling of CFCs, and the development of new technologies. Each approach should be addressed in terms of technological feasibility, the time required for implementation, and the

16. John Holusha, "Ozone Issue: Economics of a Ban", *New York Times*, 11 January 1990, 1.

17. See Richard Elliot Benedick, *Ozone diplomacy: New Directions in Safeguarding the Planet* (Cambridge: Harvard University Press, 1991) 136.

18. Article 1(9).

19. Industrial lobbyists urged decision makers to select the year 2040 in order to allow investment to be recovered for these products.

20. Armin Rosencranz and Bruce R. Scott, "Bringing the Developing World on Board", *Environmental Policy and Law*, Vol. 20, No. 6 December 1990, 202-203.

21. Philip Shabecoff, "The Race for Substitutes to Help Save the Ozone", *New York Times*, 31 March 1988, 1.

22. *Environmental Reporter* (Bureau of National Affairs)

economic cost.²³ Environmental protection is not an absolute goal. Quick reductions are essential to prevent environmental degradation, but environmental benefits should not be realized at an excessive cost.²⁴

Environmental pollution often results from economic activities. Economics, the science of scarcity, is the study of an optimal allocation of scarce resources toward human wants.²⁵ Consumer needs are determined by the market. The ozone layer's capacity to absorb pollutants is limited and market mechanisms fail to allocate this scarce resource in the most effective way. Planetary resources like the ozone layer were traditionally seen as free goods.²⁶ Free goods are perceived as unlimited resources with open access to everyone and no obligation to pay for their use. Polluters do not bear the costs they impose on the environment. As a result, users of common resources tend to over-exploit them.²⁷ This market failure is rooted in both the absence of full cost reflection of prices and the public good character of this resource. Thus, the price is dually misleading: externalities are neglected and low prices lead to greater consumer demand.

A system should be created in which prices reflect the total real costs of production, including social costs.²⁸ Two market-oriented approaches best achieve this goal: the imposition of a pollution-added tax and the introduction of transferable emission units.²⁹ Both mechanisms internalize pollution costs based on the "Polluter Pays Principle."³⁰ The main objective of this principle is to penalize polluters by insuring that prices reflect all costs.³¹

The pollution-added tax is the environmental equivalent of the value-added tax.³² The value-added tax has a double advantage: it avoids dual taxation and it does not put exported goods at a competitive disadvantage. The provider of a service or a good does not compute the tax on the total price of the re-sold

23. Richard B. Stewart, "Economics of the Environment and the Limits of Legal Control," *Harvard Environmental Law Review*, Vol. 9, No. 1 (Winter 1985): 10.

24. EPA estimates the costs of a CFC phase-out in the US at about \$3 billion. See Malcolm W. Browne, "Grappling with the Cost of Saving the Earth's Ozone," *New York Times*, 17 July 1990, C1.

25. Alvaro Umama Quesada, "Greenhouse Economics: Global Resources and the Political Economy of Climate Change," *Environmental Policy and Law*, (Spring 1989): 15.

26. *Ibid.*, 158.

27. See generally, Garrett Hardin, "The Tragedy of the Commons," *Science*, 13 December 1968, 1243 and B. Crowe, "The Tragedy of the Commons Revisited," *Science*, 28 November 1969, 1103.

28. For example: health effects, deterioration of the environment or material damage. Ronald Harry Coase, "The Problem of Social Costs", in: *Economics of the Environment*, ed. Dorfman and Dorfman (New York: Norton, 1977), 142-171.

29. B. Schärer, U. Rid and M. Lau, "Strategie und Instrumente für den FCKW-Ausstieg," *Zeitschrift für Umweltpolitik* (1989), 321.

30. The market-based approach uses market incentives to minimize costs and stimulate technological innovation. Richard B. Stewart, "Controlling Environmental Risks Through Economic Incentives," *Columbia Journal of Environmental Law* Vol. 13, No. 2 (Spring 1988): 10.

31. Organization of Economic Cooperation and Development (OECD), *Recommendation of the Council on Guiding Principles Concerning Economics Aspects of Environmental Policy* 6 June 1972, OECD Rec C(72) 128; OECD, *Recommendation on the Implementation of the Polluter-Pays Principle* 21 November 1974, OECD Rec C(74) and OECD, *Economics of Transfrontier Pollution*, 1976, 8.

32. Jain Peeyush, "Proposal: A Pollution Added Tax to Slow Ozone Depletion and Global Warming," *Stanford Journal of International Law* Vol. 26, No. 2 (Spring 1990): 557.

good, but only on the value added to the good. The problem in international trade is that tax rates vary among countries. If the country of origin levies a higher tax than the importing country, the imported goods would be at a competitive disadvantage as compared to the domestic goods. Therefore, the tax is refunded at the moment of export, but upon entry into the new market the local tax is levied. Similarly, a pollution added tax would tax all goods, domestic and imported, according to the amount of emissions they generated. The tax would be refunded for domestic goods subsequently exported. A balance is achieved. The competitiveness of the products on the international market would be unaffected because the price incentive to reduce emissions remains. The product's price would decrease the amount spent in introducing environmentally superior technologies less the amount of tax relief the producer would receive for lowering emissions. Lower prices would encourage consumers to switch to cheaper, less polluting products. Thus, the pollution-added tax would reward environmentally-aware industries with a higher income and a competitive advantage over industries in countries that did not adopt emission control measures.³³

This approach is not without shortcomings. The first problem is the difficulty of establishing a standard for calculating the tax. Technically, measuring the amount of pollutants emitted into the atmosphere is not yet feasible. Conversely, retracing the quantity of polluting compounds used in the production process is relatively easy. Therefore, a production standard would have to be used, e.g., the amount of ozone damaging chemicals required to produce a good.³⁴ A production standard could be based on accounting calculations (e.g., how much CFC was bought on the market) or on physical measurement (e.g., how much CFC does this product contain).

A more difficult problem is establishing the proper level of taxation. As the intent of the tax is to change attitudes, if the taxation were not high enough, consumers would have little incentive to switch to other less polluting, hence cheaper, products. Producers would not be adequately rewarded for their use of cleaner technology either. Too low a tax could induce producers to disregard the environmental objective and continue polluting as before. In this case, the tax would merely be a fine for non-compliance, whose burden could be shifted to consumers at less cost than investing in expensive new technologies. The opposite situation, where producers face a very high tax levied on their product, is also inefficient. The demand might fall to almost zero. At first glance, it might seem advantageous if almost no one could afford to produce or buy polluting products, but halting production of all such products is simply not feasible.³⁵

33. *Ibid.*, 559.

34. Compare with the discussion during the drafting process of the Montreal Protocol where the U.S. at the first session in Geneva 1986 based its control measures also on emissions. (UN Document/UNEP/WG.151/L2,1986). This proposal was rejected by the other states because of problems of monitoring. The CFC and halon reductions of the Montreal Protocol are based upon production and consumption.

35. The social cost is also high. A lot of employees in these industries will lose their jobs.

Producers need a transition period during which they can continue to produce the polluting product, though at a higher cost, while buying time to convert to new, environmentally safe alternatives. Therefore, the optimum rate of the pollution-added tax would be at the point where the cost for non-compliance would be higher than the possible returns on investment in environmentally sound technologies.³⁶

Another market-oriented approach for inducing industry to invest in substitutes and new technologies is transferable pollution permits.³⁷ This approach would create a market in pollution rights. It focuses on the production side and operates through quantitative limitations. The quantitative limitations are established by the government according to previously agreed upon targets for the total permissible amount of pollutants. The target level of environmental quality is translated into total allowable emission units, subsequently incorporated into permits.³⁸ The permits are allocated to firms either based on their historical emissions or by auction.³⁹ By reducing actual emissions beyond the level of the permitted emissions, companies would amass emission credits which could be sold or transferred to firms that, either for economic or technical reasons, could not meet the standards.⁴⁰ The system would provide certain companies with a measure of flexibility in implementing phase-down requirements. It would allow the continued use of harmful chemicals, but at higher prices reflecting environmental costs.⁴¹ In the long-run, it would bring about the least-cost-allocation of control burdens,⁴² while economically rewarding non-polluting or less-polluting companies. A production plant exceeding its permitted emissions would be severely penalized, including substantial fines or jail terms for the corporate directors. One hitch in this proposal is that policing permit violators presupposes the ability to detect excess emissions. Here again there are technical problems with monitoring invisible and mobile materials.

36. This equation only works under the assumption that the cost avoidance advantage is not compensated by high administrative and control costs.

37. John Harkness Dales, *Pollution, Property and Prices*, (Toronto: University of Toronto Press, 1968). The EPA uses it under its Emissions Trading Program to phase out CFCs. See Environmental Protection Agency, "Protection of Stratospheric Ozone," 52 *Federal Register* 47, (1987), 486, 498-503.

38. Thomas H. Tietenberg, *Emissions Trading: An Exercise in Reforming Pollution Policy*, (Baltimore, MD: Johns Hopkins University Press, 1985), 42.

39. Bruce A. Ackerman and Richard B. Stewart, "Reforming Environmental Law: The Democratic Case for Market Incentives," *Columbia Journal of Environmental Law* Vol. 13, No.2 (Spring 1988): 182.

40. Robert W. Hahn and Gordon L. Hester, "Where Did All the Market Go? An Analysis of EPA's Emissions Trading Program," *Yale Journal on Regulation* Vol. 6 (Winter 1989): 140.

41. Robert W. Hahn, "Market Power and Transferable Property Rights," *Quarterly Journal of Economics* Vol. XCIX, No.4 (November 1984): 753.

42. Its big advantage is that it allows firms with high costs to control less and induces firms with low control costs to engage in permit-trading. This cost-effective reallocation of control burdens results in an overall reduction of control costs. See Robert W. Hahn and Gordon L. Hester, "Marketable Permits: Lessons for Theory and Practice," *Ecology Law Quarterly* Vol. 16, No. 2, (May 1989): 364.

As long as there is no technique available to measure the amount of emissions, permit violators could go undetected.

The two market-oriented approaches discussed above are more advantageous than government imposed uniform emission limits or mandatory pollution-reduction technology.⁴³ The financial signals resulting from taxes and permits would encourage industrialists to reduce the amount of pollution, while providing them with a high degree of flexibility. Although the market approaches create a license to pollute, it makes polluters pay dearly for the privilege, thereby creating an incentive to find ways to reduce the pollution. A regulatory approach offers no incentives for abatement below the permitted amount.⁴⁴

Traditionally, politicians opted for the rigid "command-and-control" approach to regulate the adverse effects of technology on health, safety and environment. Although its lack of flexibility is a drawback for industry, monitoring is much easier and cheaper.⁴⁵ The optimum solution to cut down on harmful emissions would be a combination of a cost related market approach and a more stringent command-and-control approach.⁴⁶

International Response

The magnitude of the harmful effects caused by CFC and halon emissions on life and environment calls for expedient and total phase-out of these chemicals. The CFC problem is different from many other pollution problems because regardless of where CFCs are released, its ultimate effects are global in scale. All nations, whether or not directly responsible for the emissions, will share in the damage. This is not the type of problem that can be adequately addressed by a few states.

The following sections include a discussion on how the international community has dealt with the problem of ozone depletion and an analysis of the ozone regime established in several international agreements and protocols. The effectiveness of the ozone regime has been undermined by the concessions required to ensure broad participation by both developing and developed nations. Trade restrictions would be far more effective to assure international participation. Such restrictions would also not violate the free trade principles embodied in GATT.

43. See the government-proposed requirement that automobiles be equipped with catalytic converters.

44. Stewart, *Controlling Environmental Risks*, 160, 163.

45. In the case of catalytic converters, for example, it is relatively easy to make sure that automobile companies provide them for all their products.

46. The U.S. seems to prefer this method. The EPA is making increasing use of economic instruments by installing trade emissions programs. See: EPA, Protection of Stratospheric Ozone; Final Rule, 54 *Federal Register* 6 (1989), 376. This regulation allows manufacturers to transfer allocations.

The Development of the Ozone Regime

The Need for Global Action

The release of ozone depleting chemicals mainly occurs in a limited number of developed countries, and the economic benefits are enjoyed by relatively few. Yet, the environmental costs of those activities are borne by all nations, as a pollutant anywhere, is a pollutant everywhere. Risks do not respect national boundaries and all nations are affected to the same degree.⁴⁷

The fluorocarbon problem transcends not only physical, geographical borders, but also time. Our present lifestyle burdens our grandchildren, which implicates the concept of "inter-generational equity."⁴⁸ All people, now and in the future, have the right to a sound environment.⁴⁹ This imposes upon everyone the obligation to preserve the earth in good condition for present and future generations.⁵⁰ The present decline in environmental quality proves that our present production and consumption patterns do not match that goal. Therefore, the World Commission for Environment and Development introduced the concept of sustainable development, "a development that meets the needs of the present without compromising the ability of future generations."⁵¹ In other words, long-term prosperity will only be achieved, if we do not sacrifice the environment for short-term economic gains. Environment and development are not conflicting concepts.⁵² Economic growth depends on a sound environment. Politicians must find an optimum balance between protection of the environment and socio-economic development. If a depleted ozone layer permits enhanced ultraviolet radiation to reach the earth, the resulting damage to humans, animals and plants will adversely affect future development.

In 1987 the major CFC producing countries adopted the Montreal Protocol to deal with the ozone problem. For the first time states reacted — not in response to an environmental disaster⁵³ — but "in a conscious preventive way to protect future generations."⁵⁴ The Vienna Convention and the Montreal

47. John Warren Kindt and Samuel P. Menefee, "The Vexing Problem of Ozone Depletion in International Environmental Law and Policy," *Texas International Law Journal* Vol. 24, No. 2, (Spring 1989): 269.

48. Edith Brown Weiss, "Our Rights and Obligations to Future Generations for the Environment", *American Journal of International Law* Vol. 84, No. 1, (January 1990): 198.

49. This principle is enacted in the Universal Declaration of Human Rights and the UN Charter.

50. *Ibid.*

51. World Commission for Environment and Development, "Our Common Future", (Oxford; New York: Oxford University Press, 1987), 43.

52. Gunther Handl, "Environmental Protection and Development in Third World Countries! Common Destiny - Common Responsibility," *New York Journal of International Law & Politics* Vol. 20, No. 3, (Spring 1988): 607. See also Stewart, *Economics*, 2. He rejects the "zero sum mentality", which considers that environmental gains in pollution and natural resources areas can only be achieved by sacrificing economic goals. According to him, this is a false conflict. A sound environment is the basis for economic development.

53. See the cases of Chernobyl or Rhine River spills. Convention for the Protection of the Rhine against Chemical Pollution, December 3, 1976, *Official Journal of the European Communities* 240/66, 1977.

54. Richard Elliot Benedick, "The Ozone Treaty: Acting Before the Disaster," *Washington Post*, 4 January 1988, A13.

Protocol created a structure to avert serious future potential harms by imposing far-reaching and costly controls on CFC emissions.

The Negotiating Process

The Vienna Convention was a striking accomplishment, because it established an international system of legal and political cooperation and coordination to handle environmental concerns.⁵⁵ However, the Vienna Convention failed to adopt a protocol for future CFC control measures. This setback resulted from the discrepancy between the Toronto Group Proposal calling for a "multi-option" approach aimed at a gradual phase-out of CFC production and use⁵⁶ and the EC Proposal favoring a "single option" approach of a general production capacity cap.⁵⁷ The EC proposed a production capacity cap on CFC 11 and 12 (these are the two major forms of CFC) in all sectors and a 30% reduction in nonessential uses of CFC aerosols. Both proposals were based on self-interest. The Toronto Group's approach to reduction measures merely mirrored their internally imposed regulations. Therefore, their proposal would require little or no additional effort on their part.⁵⁸ The EC countries were already producing below their capacity, and therefore freezing their production capacity at present levels would not threaten their ability to satisfy domestic demand. Both of these groups maintained these views until 1987.

Although the Vienna Convention failed to produce substantive restrictions, the Montreal Protocol placed limits on participating countries' production and consumption of CFCs and halons.⁵⁹ Soon after its adoption, new scientific findings⁶⁰ outdated the Montreal Protocol. The London Amendments remedied this defect and provided for higher reduction targets and shorter deadlines.⁶¹

55. Vienna Convention for the Protection of the Ozone Layer, March 22, 1985 published in *International Legal Materials* (Washington, D.C.: The American Society of International Law, 1987), 537.

56. The U.S., Canada and the Nordic countries belong to the Toronto Group. The states could according to their proposal elect one of the following options: (1) Over a period of 6 years an 80% reduction of the total annual use and export of CFCs in aerosols (of the quantity of CFCs it used and exported in the year of its maximum use prior to the entry into force of the protocol); (2) Over a period of 6 years a complete ban of the total annual use and export for those uses which that party considered "essential"; (3) A 20% reduction in total use of all CFCs within 4 years; (4) Production capacity cap and a 70% reduction in nonessential uses within 6 years. UN Document/UNEP/WG.172/2, 18.

57. *Ibid.*, 5.

58. In 1978 the U.S. banned the use of all CFCs in aerosols. The first option would require little adjustment on their part.

59. The Montreal Protocol identified certain CFCs and halons as "controlled substances". These chemicals were divided into two groups, each having different schedules for reduction. Group I listed the CFCs to be controlled (CFC-11, CFC-12, CFC-113, CFC-114 and CFC-115) and Group II listed the halons (Halon-1211, halon-1301, halon-2402). The use of both groups of chemicals was frozen at 1986 levels; the freeze for group I took effect on January 1, 1989 and for group II on January 1, 1991. Only with regard to the CFCs -not halons- did the treaty impose a further reduction scheme. The initial freeze was to be followed in five years by a 20% reduction and a further 30% reduction five years later. Thus, the Protocol aimed at a total reduction of CFCs of 50% by the end of the century.

60. Scientists ascertained that the ozone hole above Antarctica was growing faster than expected. See National Aeronautical and Space Administration, "Antarctic Ozone: Initial findings from Punta Arenas, Chile," (Washington, D.C.: National Aeronautics and Space Administration, 1988).

Moreover, new chemicals were added to the list of controlled substances.⁶² The drafters of the international regime ensured the cooperation of both the developed and developing world by inserting several exceptions to the substantive limits and providing for technology transfer and financial assistance.⁶³ These numerous concessions and exceptions were the price paid for greater participation. A stringent, exemplary regime remains ineffective if only a few and/or small producing and consuming countries take part. But does the bribe paid to ensure increased participation undermine its effectiveness?⁶⁴

There had been substantial concern that developing countries⁶⁵ might not join the agreement.⁶⁶ Upon initiating or expanding into CFC markets, developing countries typically do not wish to compromise modernization efforts. They are reluctant to assign their already scarce resources to combat environmental damage they did not create.⁶⁷ They resent that developed countries made use of CFCs to industrialize and build up their wealth, but now this path is being denied to them. Because a shift to new CFC-free technology requires time and assistance from other countries, the low consuming countries (LCC) obtained a reprieve from compliance for ten years.⁶⁸ The reduction schedule will only be applicable after ten years, and the baseline from which reductions begin is not the relevant figures for 1986, but rather the average annual volumes for the period from 1995-1997 or 0.3 kilogram per capita, whichever is the lowest.⁶⁹ Furthermore, the developing countries were allowed to exceed the target level by a specified percentage at any time in the schedule, if such action was necessary to satisfy "basic domestic needs."⁷⁰

The Montreal Protocol also contains concessions to persuade developed countries to participate. Late in the negotiations the EC demanded to be treated as a single entity having one combined rate of production and consumption. The negotiating Parties accepted this "bubble concept," which allows compensation of reduction among units as long as the aggregate limits are not exceeded. It permits the increase of emissions at one or more emissions sources in ex-

61. The London Adjustments imposed a total phase out of production and consumption of CFCs and halons by the year 2000. The developing countries obtained a 10 year grace period.

62. Carbon tetrachloride (art. 2D), methyl chloroform (art. 2E) and fully halogenated CFCs (art. 2C). The deadline for the total phase out is also the year 2000, except for methyl chloroform whose deadline is the year 2005.

63. The London Amendments established a multilateral ozone defense fund in Article 10.

64. EPA estimated that the various exceptions reduced the projected effective rate of reduction from 50% to 35%.

65. The Montreal Protocol does not define a "developing country" but includes in Article 5 the exemption category: "any party that is a developing country and whose annual calculated level of consumption of the controlled substances is less than 0.3 kilograms per capita on the date of the entry into force of the Protocol." As such, defined as a Low Consuming Countries (LCC).

66. India and China are still not members to the Montreal Protocol, as they do not wish to limit their economic development.

67. Indira Ghandi's speech at the Stockholm Conference of 1972. See: "A 200 Point Ecology Plan Gains at the U.N. Conference," *New York Times*, 15 June 1972, 1.

68. Phase-out by the year 2010. See Article 5 Montreal Protocol.

69. Article 5(1).

70. Article 5 and Article 2(1-4).

change for larger decreases at other emission sources such that the total emissions from the entity do not exceed the sum of all the sources individually.⁷¹ The reallocation of the control burden, with its accompanying cost savings, is a strong argument in favor of bubbles. Although a bubble allocates the burden of reduction more efficiently, it should not have been used in the case of the EC. All of the EC members are at relatively similar levels of industrialization and have sufficient financial and technological resources to meet the Montreal Protocol's targets. The bubble creates the opportunity for some member states who are less serious about reducing emissions to take advantage of the extra-reductions of other member states. This group compliance mechanism annuls further efforts for additional emission reduction.⁷²

Aside from these incentives, several disincentives were also adopted. No nation can obtain any advantage by staying outside the regime or joining late. The reduction scheme is binding on all parties, regardless of when they ratify the Montreal Protocol, and the initial reduction levels remain the same.⁷³ Other disincentives include denied access to the "technology for producing and for utilizing" CFCs on the "controlled substances" list. Certain trade restrictions were also put into place. Taken together, these measures make non-adherence to the Montreal Protocol less profitable and accomplish two critical objectives: avoidance of the creation of pollution havens and competitive distortions. The technology and trade ban issues are discussed in more detail in the subsequent section.

The Crucial Points in the Ozone Regime

The Special Situation of Developing Countries

The international negotiating process for the establishment of an ozone regime raised the question of whether and to what extent the special needs of developing countries should be taken into account.⁷⁴ In order to tackle the ozone problem, the developed world needed the cooperation and the participation of the Third World, which, in turn, saw this as an opportunity to raise questions regarding development and equity.⁷⁵ Because the developing countries consider the problem as one caused mainly by the earlier production methods of the Western world, they tend to insist that the primary and significant steps in limiting detrimental emissions should come from these nations. They understand the need for international action, but they resist compliance at the expense

71. Stewart, *Economics*, 9.

72. Compare: Richard A. Liroff, *Reforming Air Pollution Regulation: The Toil and Trouble of EPA's Bubble* (Washington, D.C.: Conservation Foundation, 1986), 98-9.

73. For example, the year for the departing level of CFC reduction is 1986 (Article 17 Montreal Protocol); for tetrachloride is 1989 (Article 2D London Amendments), whether ratified in 1989 or 2000.

74. Dale S. Bryk, "The Montreal Protocol and Recent Developments to Protect the Ozone Layer," *Harvard Environmental Law Review* Vol. 15, No. 1 (Winter 1991): 275.

75. Caron, 762.

of their own development. Therefore, even after winning a ten year delay for complying with the reduction scheme set forth in the Montreal Protocol, the developing countries continued to press for additional concessions as well as financial and technological compliance assistance. The concessions of the developing countries were re-addressed in the 1989 London Amendments to the Montreal Protocol.

Financial Mechanism

In 1989, several Conferences focused on how to protect the ozone layer while recognizing the development claims of poorer countries.⁷⁶ The implementation of the reduction schedules depended upon effective financial cooperation between the developed and the developing world. The participating nations understood that there had to be an equitable allocation of the burden among all countries, and they agreed that the economically weak countries were not in an economic position to undertake stringent regulatory measures. It was not until the London Conference that the Parties agreed on the establishment of a financial mechanism to assist developing countries in meeting the requirements of the Protocol.⁷⁷

A CFC fund⁷⁸ was created to ease financial and technical cooperation and assist developing countries in meeting a broad spectrum of incremental costs associated with the switch to ozone friendly substitutes.⁷⁹ As developed countries feared the misuse or misallocation of these funds, especially for military purposes, appropriate use of fund disbursements are monitored and controlled by a fourteen-member committee drawn from the developed and developing world. The fund is administered by the World Bank, the United Nations Environment Program (UNEP) and the United Nations Development Program (UNDP).⁸⁰ This confluence of interests in the governing and supervising organ fosters mutual trust and cooperation.⁸¹

If the system proves to be valuable in the near future, it will serve as a precedent for the negotiations concerning global warming. Analogous demands exist for the abatement of the greenhouse gases, and some states favor

76. New Delhi Conference on Global Warming and Climate Change of February 1989; The London Conference on Saving the Ozone Layer of March 1989 and The International Conference of Den Haag on the Protection of the Environment of March 1989.

77. Article 10 as revised by London Amendments.

78. The budget for the next three years totals \$160 million. When China and India ratify the Montreal Protocol, another \$40 million for each country will be added. It shall be financed by voluntary contributions of the industrialized countries corresponding to the U.N. apportionment scheme. The states agreed that the money would not be siphoned off existing aid programs, but would be additional to current assistance. See Decision II/8, UN Document/UNEP/OzL.Pro. 2/3, 12.

79. Roger Milne, "U.S. Agrees on Extra Funds to Safeguard Ozone Layer" *New Scientists* (23 June 1990): 30.

80. Rosencranz and Scott, 201.

81. In the decision-making process of the governing body the World Bank will represent the financial world, UNEP the environmental concerns and UNDP development objectives. Further, the industrialized countries must not fear of being outvoted all the time by the numerical majority of the developing world. Both are on equal footing and will on crucial points work out a compromise acceptable for both.

the establishment of a more general climate trust fund at the U.N. Conference on Environment and Development in 1992.⁸² Success depends on whether or not India and China will join the regime after the fulfillment of their major request for the transfer of technology and financial assistance. Countries like China and India, representing over one-third of the world population and producing over 20,000 tons of CFCs a year, can easily negate the CFC cutbacks made by the industrialized world.⁸³ It is probably this pressure that caused the industrialized world to establish a CFC fund. The ozone fund is the price to be paid for their renunciation of technical excess. At the London meeting the representatives of China and India stated that they would recommend joining the Protocol to their governments.⁸⁴ If their staunch objections to the regime could be turned into an acceptance in the near future, it might be hailed as a major diplomatic victory.

Technology Transfer

Besides financial support, developing countries also demanded technical assistance. Today, technology transfer is at the heart of the international environmental agenda. In order to save the ozone layer, the full cooperation of industry is needed to find safer substitute technologies and products. If this technology is simply confined to the developed world, there will be no reprieve for the global environment. Developing countries need access to more benign technologies so they can leapfrog wasteful and polluting technologies inherited from the developed countries. But this technology is, for the most part, developed and managed by the private sector, understandably reluctant to surrender patents and hard-won competitive advantages in new products and technology in the name of global philanthropy. Developing countries cannot expect a free ride from the firms which own the technology.⁸⁵ The transfer of technology must include fair compensation and cannot be made mandatory.

An obligatory technology transfer to the Third World was not obtained at the London Conference. The developed countries resisted the concept of international regulation of the intellectual property rights of their domestic industries. Most states were simply not willing to force domestic companies to transfer their patented technology. The research and development of new technology is costly and time consuming, and obliging the entrepreneur to surrender it to others without compensation eliminates the incentive to continue research and development efforts. The London Amendments left it to the discretion of each Party to determine whether and how to arrange the transfer of environmentally safe substitutes and related technologies.⁸⁶ It is rather doubtful that progress will be made with regard to the licensing and sale of clean

82. Caron, 764.

83. Cynthia Pollock Shea, "Protecting Life on Earth: Steps to Save the Ozone Layer," *Worldwatch Paper*, 1988, 21.

84. Decision II/8, UN Document/UNEP/OzL.Pro.2/3, 18.

85. Bryk, 286.

86. Article 10A London Amendments. It requires that transfer occurs under "fair and favorable conditions."

technology as long as a consensus on the intellectual property aspect is not reached.

It is up to the world community to create incentives for making new technology and substitutes accessible to poorer nations. While rejecting the policy of mandatory transfer of technology, the London Amendments created a CFC fund, which could be used to pay royalties. The fund can make technology available to the Third World, while providing industry with sufficient economic returns, so as to encourage continued investment in new substitutes and technologies. Moreover, using the CFC fund to pay royalties to the private sector would balance the interests of the intellectual property holders on the one side and the public interests and developmental objectives of the Third World on the other.⁸⁷

Trade Measures

Description of the Trade Measures

The drafters of the ozone regime adopted two strategies to ensure widespread participation. First, they allowed various concessions to different interest groups. Second, they provided trade sanctions. Trade bans are a powerful and effective device. They were first used to achieve environmental objectives in the Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).⁸⁸ This convention sought to prevent the extinction of certain species by restricting trade with non-party countries. Because the convention permits parties within certain prescribed limits to kill, capture or trade in certain species or products, states preferred to join the convention rather than be cut off from valuable export and import opportunities. Economically, it made more sense for states to participate in the international regime than remain outside.

The trade provisions of the Montreal Protocol are based on the same principle. The Parties sought to limit the emissions of CFCs and halons by making it unattractive for CFC producing countries to stay outside the Protocol. The Parties inserted two types of trade restrictions to achieve this objective. The first type is related to the trade of chemicals themselves and bans all imports of CFCs and halons from any non-Party after 1990.⁸⁹ The export of these substances to non-Parties will only be permitted until 1993.⁹⁰ The second type of trade restriction is related to products containing or manufactured with CFCs and halons, and provides for a longer transaction period. Parties are obliged to introduce measures for restricting and banning the import of all such products within three to five years of the effective date of the Montreal Protocol.⁹¹ Additionally,

87. UN Document/UNCTAD/INF./2168 (April 1991).

88. Convention on International Trade in Endangered Species published in *International Legal Materials* (Washington, D.C.: The American Society of International Law, 1973), 1085.

89. Article 4(1).

90. Article 4(2).

all Parties are to discourage the proliferation of CFC and halon technology among non-Parties and withhold any "new" financial support for the export of products or technologies that aid in the production of CFCs.⁹² The export of products, capital or technology which reduce CFC and halon emissions, however, is still allowed.⁹³

Trade sanctions are an important disincentive, because substantial earnings result from the production and trade of these chemicals and their by-products. Especially in industrialized countries, the trade in CFCs is extensive.⁹⁴ They are net exporters of CFC and halon bulk chemicals. The success of the regime depends upon their adherence, and the trade ban assures their participation. Developing countries, are usually not in a position to export CFCs, so an import ban on bulk chemicals would hardly affect them. For the developing countries a trade ban on goods containing or made with CFCs would be a more powerful incentive for them to join the Protocol, as such goods constitute the lion's share of their exported commodities. Developing countries simply cannot afford to lose export earnings and access to the markets of industrialized countries.

The Applicable GATT Principles

Although trade sanctions can be very successful mechanisms for decreasing the incentives for both developed and developing nations to remain outside the international ozone regime, they must be consistent with existing bilateral and multilateral trade agreements such as the General Agreement on Tariffs and Trade (GATT).⁹⁵ The next sections discuss the applicable GATT principles and show that trade sanctions to protect the environment are not incompatible with the free trade principles of GATT.

GATT is generally recognized as the main international agreement and rule system governing trade. It was created after the Second World War to foster free and non-discriminatory trade. The non-discrimination principle, prohibiting discrimination among GATT members⁹⁶ and prescribing equal treatment⁹⁷ of imported and domestically produced goods, became the primary vehicle for

91. Article 4(3) and 4(4). Within three years after the Montreal Protocol takes effect, Parties must create an Annex listing products containing controlled substances. Absent objection to the list, within one year of the Annex becoming effective, the Parties must ban import of the listed products from any state not a Party to the Protocol. Within five years the Parties must determine the feasibility of banning or restricting imports of products produced with, but not containing, controlled substances. If feasible, an Annex will be developed and Parties not objecting to the list will effect such bans or restrictions within one year of the Annex's effective date.

92. *Ibid.*

93. Article 4(7).

94. The EC produces approximately 45% of the market and one third is intended for export to developing countries. See Shea, 25.

95. General Agreement on Tariffs and Trade, 55, UNTS, 194. The issue of compatibility with GATT was raised during the negotiations. See: UN Document/UNEP/WG. 167/2, 4 March 1987, and UN Document/ UNEP/WG. 172/2, 8 May 1987.

96. Art. I GATT containing the Most Favored Nation Clause prescribing equal treatment among foreign goods.

97. Art. III GATT embracing the National Treatment Clause inhibiting discrimination between domestic and foreign goods.

implementing a liberal international trade policy.⁹⁸

The anti-discrimination obligation between foreign and domestic commodities applies to both tariff and non-tariff trade barriers.⁹⁹ In the first round of GATT negotiations, the focus was primarily on the reduction of protective tariffs. Currently, tariffs are relatively low, and more attention is paid to the reduction of import and export controls and non-tariff trade barriers.¹⁰⁰ States are quite innovative in finding ways to protect domestic industry. One method is through the imposition of technical and product standards,¹⁰¹ whereby products not conforming to these standards are kept out of the market. However, trade restrictions are only justified under GATT if they reflect legitimate policy interests, such as protection of the environment.¹⁰² As a result, GATT provisions have the potential to overturn many internal regulations and governmental measures, thereby treading on the sovereignty and sensitivities of member nations and making this obligation rather unpopular with governments.

The Tuna Fish Ruling

Legitimate national policy goals, such as protecting the environment, can result in governmental measures that significantly restrict trade. Strong political constituencies have emerged in the industrialized world to lobby for safety and environmental regulations. Unfortunately, some states, under the guise of protecting human health or the environment, have tried to protect domestic industry.¹⁰³ The landmark decision concerning the compatibility of national environmental standards with free trade is GATT's Tuna Fish Ruling.

In this panel proceeding, Mexico contended that the U.S. had wrongfully closed its market to Mexican tuna fish. The U.S. argued that the trade restrictions were necessary to protect dolphins being killed by tuna fishermen. Mexican fishermen had been using purse-seine nets to catch tuna, which sometimes also trap and kill dolphins. The 1990 version of the Marine Mammal Protection Act¹⁰⁴

98. John H. Jackson, "Equality and Discrimination in International Economic Law (XI): The General Agreement on Tariffs and Trade," *Yearbook of International Trade*, 1983, 1987. The following argument focuses on the equal treatment obligation of GATT.

99. Robert E. Baldwin describes trade barriers as "any measure (public or private) that causes internationally traded goods and services or resources devoted to the production of these goods and services, to be allocated in such a way as to reduce potential real world income." See: Baldwin, *Nontariff Distortions of International Trade* (Washington, D.C.: Brookings Institution, 1970), 5.

100. For more information on GATT see: John H. Jackson, *World Trade and the Law on GATT* (Indianapolis: Bobbs-Merrill, 1969) and Seymour J. Rubin and Thomas R. Graham, *Environment and Trade* (Totowa, N.J.: Allanheld, Osmun, 1982).

101. By imposing certain quality or standards specifications equally on domestic and imported goods, states might nevertheless protect domestic producers. For example, Belgium requires that margarine must be sold in cubes, which is how domestic producers market it, and not in oblong sticks, as in the rest of the EC. "Lebensmittel v. De Smedt Pvba," *Common Market Law Reports* Vol. XXXVII, Part 403 (12 July 1983): 496.

102. According to Article XX (b) GATT, trade restrictions are justified if they promote or protect "human, animal or plant life or health".

103. See for example: EC Directive Prohibiting Use in Livestock Farming of certain Substances Having a Hormonal Action, *Official Journal of the European Communities* 382/228, 1985. The EC plan to ban the sale of all meat treated with growth hormones launched a trade war with the U.S.

prevents domestic fleets from using this fishing method and prohibits the import of canned tuna products from any nation that continues to use drift nets. Mexico contended that the U.S. was really more interested in protecting its national tuna fishing fleet than in protecting dolphins.¹⁰⁵ A GATT tribunal ruled that Mexico was right: The ban on Mexican tuna was illegal, because it was contrary to the GATT's equal-treatment requirement. The panel found that a Contracting Party may not restrict imports of a product merely because it originates in a country with environmental policies different from its own.¹⁰⁶

The Tuna Fish Ruling has serious implications for the international ozone regime. GATT may come to view itself as the only forum for disputes concerning environmental measures that impose trade restrictions or penalties for non-compliance. Several specialists¹⁰⁷ on the ozone problem concede that trade restrictions, such as those contained in CITES and the Montreal Protocol, would violate the non-discrimination obligations of GATT Articles I and III. However, they argue that such restrictions are legal under Article XX(b) GATT, permitting trade restrictions essential to protecting "human, animal, or plant life or health."

GATT and the Trade Provisions of the Montreal Protocol

During the drafting process of the Montreal Protocol, a GATT legal expert voiced concern over a potential conflict between a CFC trade ban and the principles of GATT.¹⁰⁸ He indicated that the contemplated trade restrictions would probably not constitute a GATT violation as long as they fell within the scope of Article XX(b). However, he qualified the statement by saying that the question would only be definitively resolved if and when a GATT member filed a complaint against another.¹⁰⁹

This extremely cautious weighing of words reflects the division that exists among GATT experts. According to some hardliners, unconditional, liberal trade is the only vehicle that will increase the income and prosperity of the international community. They believe pre-war trade protectionism was a leading cause of the Second World War and vehemently oppose any measure obstructing free trade. On the other hand, there are GATT experts who understand that international trade affects not only the economy, but also the ecology.¹¹⁰ The GATT environmental contingent is not as powerful as the free-traders, and some members have urged institutional reforms to close this gap.¹¹¹

104. 16 USCS section 1361 (1991).

105. "Ruling opposes U.S. Ban on Mexico Tuna", *Los Angeles Times*, 23 August 1991, D5, and "Salinas Woos U.S. Dolphin Activists; Having Won in GATT, He Seeks Voluntary Lifting of Ban," *Latin America Weekly Report*, 10 October 1991, 11.

106. "European Community GATT official assesses tuna decision's impact on link between environment and trade," *International Trade Reporter*, No. 16 October 1991.

107. Johan G. Lammers, "Efforts to Develop a Protocol on Chlorofluorocarbons to the Vienna Convention for the Protection of the Ozone Layer," *Hague Yearbook of International Law*, (Spring 1988): 256.

108. UN Doc./UNEP/WG. 167/2, March 4, 1987 and UN Doc./UNEP/WG. 172/2, May 8, 1987.

109. UN Doc./UNEP/WG. 172/2, May 8, 1987, 18.

110. James A. Barnes, "The Growing International Dimension to Environmental Issues," *Columbia Journal of Environmental Law* Vol. 13, No. 2 (Spring 1988): 391.

Their objective is to avoid decisions that might be good for trade, but harmful to the ecology or human health.

The core issue is whether or not the trade bans of the Montreal Protocol violate the non-discrimination principle of GATT, specifically those concerning equal treatment. This principle contains two specific obligations. First, it requires its members not to use internal regulations "*so as to afford protection to domestic production.*"¹¹² Governments tend to protect domestic industry against foreign competition through all kinds of regulatory devices. Determining the protective effect or intent of national regulations implicates a value judgment as to the legitimacy of a state's policy goals.¹¹³ This requires achieving a balance between preserving open trade and national sovereignty on the one side, and preserving the environment and international enforcement on the other. Secondly, states should accord to foreign products "*a treatment not less favorable than that given to domestic goods.*"

Article 4 of the Montreal Protocol lists several import and export controls. In evaluating their legitimacy within the GATT, a distinction should be made between product and production norms.¹¹⁴ Both are non-tariff trade barriers hindering the free movement of goods. Product standards are a clear violation of the equal treatment principle—even if applied non-discriminatorily—when the standard is formulated so as to protect national industry. With regard to production standards, the conflict is less discernible. They might be exempted under Article XX(b) and the Preamble, if all requirements are met. The Preamble states that a party may take measures necessary to achieve domestic goals, provided that the measures do not constitute "*a disguised restriction of international trade.*" The concept is further described in Article XX:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures :

111. The EFTA members claim that GATT is insufficiently equipped to meet the challenge of environmental issues. See: "Several countries urge quick start to GATT environment work," *GATT Newsletter* (April 1991): 9, and "Ministerial Meeting in Brussels 1990," *GATT Newsletter* (December 1990): 4.

112. A regulation on its face appears often to be non-discriminatory. If it has an effect affording protection and this effect is not essential to a valid regulatory purpose as suggested in Article XX, then such regulation is inconsistent with GATT obligations.

113. Jacques H. Bourgeois, "The Tokyo Round Agreements on Technical Barriers and on Government Procurement in International and EEC Perspective," *Common Market Law Review* Vol. 19, No. 1 (March 1982): 8.

114. Product norms are standards related to product itself. For example the requirement that beer should be sold in bottles of 25 cl. Production norms are standards related to the manufacturing or processing of the product and their impact on the pollution of the environment. In this case the product is defined in reference to the process and production method used in making the product. For example, a statute stating that a beverage may only be labeled as beer when it contains particular ingredients.

- ... (b) necessary to protect human, animal or plant life or health ; ...
- (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption ; ...

Thus, even if one could not make a case under Article III, a member state could always resort to the Article XX exception, if it pursues one of the specified domestic objectives. GATT law stresses that any restriction on foreign practices for environmental or health reasons must be reflected in a domestic commitment. To diminish the possibility that this exception would be abused, some prerequisites ought to be observed: the measures must be necessary; may not be arbitrary or unjustified; and may not constitute a disguised restriction on international trade.¹¹⁵

The trade restrictions that are part of the international ozone regime meet all three prerequisites. As to the necessity requirement, the ultimate objective of the trade restricting measures in the Montreal Protocol is the protection of the ozone layer. Its destruction causes deleterious effects on all life on earth. Thus, the protective measure is proportional to the goal, and the objective itself is permissible. The second GATT requirement bars arbitrariness.¹¹⁶ When equal conditions exist, no different treatment is allowed. Discrimination between countries that adopt control measures and countries that do not is allowed, as it is not a situation "*where the same conditions prevail.*" However, when countries essentially take the same control measures, a different treatment is not allowed, even if that country is not a Party to the Montreal Protocol. No discriminatory treatment is allowed under Article XX GATT. Lastly, non-tariff barriers are a seductive means of protecting domestic industry. Hence, the London Agreement and GATT enforcing entity must take care that the real purpose of any measure is the protection of environment. The purpose of the Article XX(b) exception is to prevent any health, safety or environmental standards which would be "*unnecessary obstacles of international trade.*" Because the trade sanctions in the international ozone regime are necessary, non-arbitrary and do not constitute unnecessary obstacles to international trade, they are not inconsistent with the guiding principles of GATT.¹¹⁷

115. Richard Elliot Benedek, *Die Rechtsordnung des GATT aus völkerrechtlicher Sicht*, (Berlin; New York: Springer Verlag, 1990), 167.

116. A similar provision is inserted in Article 4 (8) of the Montreal Protocol to omit difficulties with GATT: Measures may not be applied in a manner which would constitute a means of "arbitrary or unjustified discrimination between countries where the same conditions prevail."

117. As a last resort, GATT members seeking to justify the trade restrictions could invoke the waiver provision of article XXV(5). That provision "... allows the CONTRACTING PARTIES to waive any obligations imposed upon the CONTRACTING PARTIES by the Agreement in exceptional circumstances not provided for in the Agreement ... " GATT makes no attempt to define the phrase "*exceptional circumstances*", but certainly a good argument could be made that the ozone layer is precisely the type of worldwide emergency to warrant an exemption from GATT obligations.

Conclusion

The international community has established an international ozone regime that contains too many loopholes and concessions to deal effectively with the depletion of the ozone layer. The need to ensure worldwide participation in addressing this global environmental problem led to concessions that delayed the banning of CFC production, treated European nations as a single entity in measuring CFC emissions, and relaxed restrictions on emissions in countries with central planned economies.

Other aspects of the international ozone regime afford greater promise in allowing effective measures to be taken to attack the ozone problem without losing widespread adherence. Trade sanctions, in particular, are one such mechanism and would not necessarily conflict with the free trade principles of GATT. The developed nations' recent moves to make more financial and technological aid available to facilitate developing countries' compliance with the international regime without unduly sacrificing their economic growth are a positive step.

Ultimately, however, more clean substitutes and better technology are required to prevent further thinning of the ozone shield. Nations could encourage industry to achieve this goal more expeditiously by adopting market incentives. A pollution-added tax and/or a system of transferable emission units reward those producers who shift to less harmful production methods, while increasing the costs of those who fail to do so. As environmental consciousness increases in the industrialized countries leading to more aid to the less developed countries, the latter must begin to acknowledge the fact that sustainable economic growth can only be achieved in a world that is environmentally sound.

