

SUCCESS AND FAILURE COMPONENTS OF GLOBAL ENVIRONMENTAL COOPERATION: THE MAKING OF INTERNATIONAL ENVIRONMENTAL LAW

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There is a political imperative driving environmental diplomacy. It is the rising level of consciousness among people everywhere of the serious nature of the global environmental problems. One can feel it in the air at the increasingly numerous international conferences held on the subject. Governments are eager to be seen as taking a constructive stance. It is time to translate that attitude into action.¹

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1. Geoffrey Palmer, *New Ways to Make International Environmental Law*, 86 AM. J. INT'L. L. 259, 283 (1992).

I. INTRODUCTION

As this quotation suggests, international environmental problems have taken center stage since the end of the cold war, capturing the attention of scholars and diplomats alike. The number of scholarly articles devoted to the environment, particularly those focusing on international environmental problems, has increased dramatically in the past few years.² The current literature seems optimistic regarding the role of international law in creating solutions for international environmental problems. Perhaps sparked by the recent successes in environmental treaty making,³ much of the literature contains aggressively idealistic proposals.⁴ We think, however, that this literature generally fails to capture the realities of the international political system and thus, the proposals are likely to fail as solutions for international environmental problems.

This paper has a threefold purpose. The first is to examine the views of legal idealists and suggest ways in which their views may be miscast in light of current international political realities. The second is to discuss an approach toward international politics and the behaviors of states that present an improved perspective on the reasons why states cooperate with each other. The third is to identify factors that have led to the success of some international environmental legislation and compare these factors to those of failed attempts. From these efforts we will suggest a type of international environmental legal negotiations that will explicate reasons for failed as well as successful attempts to create international environmental law.

2. See generally Eric Lafferriere, *Environmentalism and the Global Divide*, 3 ENVTL. POL. 91 (1994); Geoffrey Palmer, *The Implications of Climate Change for International Law and Institutions*, 2 TRANSNAT'L L. & CONTEMP. PROBS. 205 (1992); J.S. Barbosa, *Greenhouse Effect: Available Legislation and Needed Treaties and Agreements*, 59 REV. JUR. U.P.R. 841 (1990); Dan M. Berkovitz, *Pariahs and Prophets: Nuclear Energy, Global Warming, and Intergenerational Justice*, 17 COLUM. J. ENVTL. L. 245 (1992); Ranee K.L. Panjabi, *Can International Law Improve the Climate? An Analysis of the United Nations Framework Convention on Climate Change Signed at the Rio Summit in 1992*, 18 N.C.J. INT'L L. & COM. REG. 491 (1993). For a discussion concerning the rise of environmental issues, see Jim MacNeill, *The Greening of International Relations*, 45 INT'L J. 1 (Winter 1989-90).

3. See, e.g., Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, 26 I.L.M. 1541, 1550 (entered into force, Jan. 1, 1989) [hereinafter Montreal Protocol]; Barcelona Protocol for the Prevention of Pollution of Mediterranean Sea by Dumping from Ships and Aircraft, Feb. 16, 1976, 15 I.L.M. 285, 290 (1976) [hereinafter Barcelona Protocol].

4. Palmer, *supra* note 1, at 283; Philippe Sands, *The "Greening" of International Law: Emerging Principles and Rules*, 1 IND. J. GLOBAL LEGAL STUD. 293 (1994); Jose L. Fernandez, *Global Warming Legislation: Putting the Carbon Genie Back in the Bottle*, 42 SYRACUSE L. REV. 1095 (1991); at Peter S. Thatcher, *Alternative Legal and Institutional Approaches to Global Change*, 1 COLO. J. INT'L ENVTL. L. & POL'Y 101 (1990).

II. IDEALIST PERSPECTIVES ON INTERNATIONAL ENVIRONMENTAL LAW

There seems to be a clear understanding among both scholars and diplomats alike that dramatic steps are necessary to preserve the already degraded environment. Anthropogenic effects on the global environment, too long ignored by large numbers of people and states alike, have clearly emerged as one of the crucial issues in the 1990s. Preservation of the international environment has even been recognized as a pressing issue of global security.⁵

Two major forces seem to be driving the intensity of the current environmental movement. The first motivating force can be identified as a kind of "desperation" over the state of the environment and a fear that it already may be too late to put it right. Many have fallen into a "panic mode" and feel that drastic emergency action is mandated. Similar to the need to "end war forever" that followed World Wars I and II, the devastation of the environment, has resulted in an urgency among us rarely felt in international law or politics in "normal times."

A second force driving the current environmental movement is the new wave of international "idealism" which has followed the end of the cold war. This idealism, rife within the literature of both international law and international politics, has brought forth a significant number of sweeping proposals to deal with various global problems.⁶

Legal idealism seems particularly to have pervaded the area of international environmental law.⁷ The end of the cold war has offered the opportunity to turn away from the concern over the nuclear standoff between the superpowers and gave rise to, among other things, a redoubling of efforts to solve the growing number of global environmental problems. These efforts have led to optimism on the part of many scholars of international law and politics.⁸ Not unlike efforts to grant

5. See, e.g., Jessica T. Mathews, *The Environment and International Security*, in WORLD SECURITY: CHALLENGES FOR A NEW CENTURY 274-89 (2d ed. 1994); Jessica T. Mathews, *Redefining Security*, 68 FOREIGN AFF. 162 (1989); Philippe Sands, *Enforcing Environmental Security: The Challenges of Compliance with International Obligations*, 46 J. INT'L AFF. 367 (1993); Thomas F. Homer-Dixon, *On the Threshold—Environmental Changes as Causes of Acute Conflict*, 16 INT'L SEC. 76 (1991); Thomas F. Homer-Dixon, *Environmental Scarcities and Violent Conflict: Evidence from Cases*, 19 INT'L SEC. 5 (1994); Gunther Handl & Robert E. Lutz, *An International Policy Perspective on the Trade of Hazardous Materials and Technologies*, 30 HARV. INT'L L.J. 351 (1990).

6. See *supra* notes 2-5 and accompanying text.

7. See *supra* note 4 and accompanying text; see also GREENING OF INTERNATIONAL LAW (1994).

8. See, e.g., Palmer, *supra* notes 1-2.

compulsory jurisdiction to the International Court of Justice "I.C.J." following the two world wars,⁹ or similarly futile efforts to outlaw war,¹⁰ international lawyers and politicians have called for tougher international environmental law with sufficient teeth to make states comply with those regulations necessary to halt the ongoing environmental degradation.¹¹ As the United States-Soviet conflict becomes a matter for historians, the time seems ripe to take bold steps to preserve the environment. If attempts to make environmental law are to succeed and not merely emulate the attempts to outlaw war or to create compulsory jurisdiction for the I.C.J., they must reflect more of an awareness of the international political system's limitations than those mostly futile efforts.

"Desperation" and "idealism" have come together to influence thinking within the international environmental movement with two results. These results can be called "needs" and "solutions." The former consists of problem identification and specification of the goals necessary to return the environment to the "status quo ante" degradation. The latter consists of policy means for achieving the former. Because of the strength of these two forces within the international environmental movement, there have been many idealistic solutions proposed that fail to account sufficiently for the realities of international politics.¹²

While there may be little problem with the forces of panic and idealism driving the problem identification half of the equation, (beyond a "Chicken Little" syndrome)¹³ there can be significant difficulty created by these two forces on the solution side. Problems arise when laws are promulgated that have little chance of success. Like the fifty five mile-per-hour speed limit in the United States during the 1970s and 1980s, laws that lack the support of vast numbers of relevant actors are doomed to be broken and ignored. While occasional occurrences like this might not be terribly harmful to the overall legitimacy of highly authoritative legal

9. See Lorna Lloyd, "A Springboard for the Future: A Historical Examination of Britain's Role in Shaping the Optional Clause of the Permanent Court of International Justice," 79 AM. J. INT'L L. 28 (1985).

10. The most famous example, of course, is the Kellogg-Briand Peace Pact. Treaty Providing for the Renunciation of War as an Instrument of National Policy, Aug. 27, 1928, 46 Stat. 2343, 94 L.N.T.S. 57.

11. Palmer, *supra* note 1, at 264. See generally Shabtai Rosenne, THE LAW AND PRACTICE OF THE INTERNATIONAL COURT 364-67 (1965); Peter H. Sand, *Institutions for Global Change: Whither Environmental Governance?*, 19 POL'Y STUD. J. 93 (1991); Abram Chayes & Antonia H. Chayes, *Adjustment and Compliance Processes in International Regulatory Regimes*, in PRESERVING THE GLOBAL ENVIRONMENT: THE CHALLENGE OF SHARED LEADERSHIP 280-308 (1991).

12. See, e.g., Palmer, *supra* note 2.

13. Fernandez, *supra* note 4.

systems, such as those of national policies, they can have a deleterious effect on a more voluntary legal arrangement like international law.

We are not suggesting that international law is so fragile that the slightest deviation will destroy its entire fabric and are mindful of its centuries-long staying power, but there can be little doubt that international law lacks the authoritative structure of domestic law. To treat it as though it does, and to attempt to make laws accordingly, is to court failure. While it may be true that poor laws are better than no laws (some people actually drove fifty five MPH), it is also true that laws tailored to fit existing political realities have a much better chance for success. They can form the building blocks for future and, if warranted, more stringent regulations. The laws themselves can be a form of consciousness raising, a vital factor in the solution to any kind of problem, but only if they are accepted by a sufficient number of actors within the legal system.

We proceed on the notion that the best way to solve any problem or set of problems is to tailor the solution to fit the realities of the situation, rather than to propose solutions based on some utopian view. While relevant utopias can be useful in showing directions for future action and consciousness raising, they rarely solve pressing problems. Recognizing that solutions based on the likelihood of their success are often less than ideal, however, they frequently suffice until political conditions allow further progress.¹⁴ In other words, while ideal solutions are best, they may not be achieved because of current political realities. It is better to have some action to solve a problem rather than none. Sufficing strategies, therefore, may be the most practical in the long term.

Normally prudence would suggest, in the face of a potential environmental threat and uncertain scientific evidence regarding that threat, that it is better to err on the side of caution and take immediate protective measures. The costs of taking protective measures against potential threats, however, must be weighed carefully if states are to be expected to forge international environmental legislation. This weighing may often mean, as in the case of global warming, that initial protective measures will not be as stringent as many deem necessary.¹⁵ It should be remembered that for a state whose proper "moral" obligation is to guard the interests of its citizens,¹⁶ the cost of protective measures can run

14. Herbert A. Simon, *Human Nature in Politics: The Dialogue of Psychology with Political Science*, 79 AM. POL. SCI. REV. 293 (1985).

15. Palmer, *supra* note 2; James K. Sebenius, *Designing Negotiations Toward a New Regime: The Case of Global Warming*, 15 INT'L SEC. 110 (1991).

16. Gary L. Scott & Craig L. Carr, *Are States Moral Agents?*, 12 SOC. THEORY & PRAC. 75 (1986).

considerably beyond simple monetary costs. It may also involve the cost of granting certain controls to third parties.¹⁷ Because of these expanded costs, it is likely that the kinds of agreements most acceptable to states will be either universal general principle agreements¹⁸ or narrowly drawn specific agreements either of a bilateral¹⁹ or regional nature.²⁰ While this may be less than is deemed ideal, it is superior to trying to achieve stringent comprehensive agreements that will fail to come to fruition.

Successful international law should be based on, and be a reflection of, the contemporary international political system. Moreover, the international political system should be understood, not merely through the observation of constantly changing daily events or short-term trends, but through the broader, more historical, perspective of international political theory. There is then a necessary connection between theory development in international politics and the development of successful international law.²¹

It may seem of little help to suggest the creation of international law should be based on general international relations theory, since there is no universally accepted theory or perspective about the international political system. Theories abound along a continuum ranging from idealists on the one end to unreconstructed Machiavellian realists on the other.²² Where persons place themselves along this continuum will

17. One of the major stumbling blocks to the United Nations Convention on the Law of the Sea was the creation of the deep seabed regime and the treaty's dispute settlement mechanisms. U.N. Convention on The Law Of The Sea (Dec. 10, 1982) U.N. Doc. A/Conf 62/122 (1982), *reprinted in* 21 I.L.M. 1261. (Entered into force Nov. 16, 1994).

18. *See, e.g.*, Vienna Convention for the Protection of the Ozone Layer, Mar. 22, 1985, T.I.A.S. No. 11,097, *reprinted in* 26 I.L.M. 1516, 1529 [hereinafter Vienna Convention]; Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution, Feb. 16, 1976, 1102 U.N.T.S. 27, *reprinted in* 15 I.L.M. 290 [hereinafter Barcelona Convention]; London Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 12 I.L.M. 1319.

19. Treaty Between Canada and the United States of America Relating to Boundary Waters and Questions Arising Along the Boundary Between the United States and Canada, Jan. 11, 1909, Can-U.S., 36 Stat. 2448, T.S. No. 548; Canada-United States Agreement on Air Quality, Mar. 13, 1991, U.S.-Can., 30 I.L.M. 676, 678.

20. *See, e.g.*, Barcelona Protocol, *supra* note 3; Athens Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources, May 17, 1980, 1328 U.N.T.S. 105, *reprinted in* 19 I.L.M. 863, 869 [hereinafter Athens Protocol].

21. For an excellent treatment of the developments in international relations theories, particularly in the post World War II world, and their relation to the developments in international legal theory, see Anne-Marie S. Burley, *International Law and International Relations Theory: A Dual Agenda*, 87 AM. J. INT'L L. 205 (1993).

22. For liberal or idealist perspectives on international relations theory, see for example, Robert W. Cox, *Social Forces, States, and World Orders: Beyond International Relations Theory*, 10 MILLENNIUM: J. INT'L STUD. 126 (1981); Richard K. Ashley, *The Poverty of Neorealism*, 38 INT'L ORG. 225 (1984); and Immanuel Kant, *Perpetual Peace*, in KANT'S

naturally condition their views of what is desirable and what is possible in the realm of international politics and international law.

While there has always been a wide array of theories about the behavior of states, certain theories, from time to time, capture the attention of the majority of scholars. The popularity of these theories seems to run in cycles. As one theory is blamed for the poor state of international affairs, a new, or more likely recycled, theory comes to the forefront until it too becomes the victim of the uncertainties of international politics. Political realism was blamed for the breakdown in international politics that led to World War I. It was replaced by Wilsonian idealism, which in turn became the whipping boy for a resurgent realism after World War II.²³ As noted above, we seem, once again, to have entered a period where political and legal idealism are ascendant. The Presidential Address at the 1993 International Studies Association annual meeting addressed the "Neoidealist movement,"²⁴ and the President of the American Society of International Law has proclaimed the death of the "Sword" sovereignty.²⁵

Political and legal idealism seem to have captured the international environmental movement as well. It is frequently assumed that solutions to transboundary environmental problems require unprecedented levels of cooperation, even altruism, on the part of the offending individuals or states.²⁶ Given a shortage of altruism in the international system, it is sometimes concluded that it is the sovereignty of the nation-state that impedes international legislation.²⁷ Works are still appearing that echo Garrett Hardin's famous call for an authoritative solution to the "tragedy of the commons."²⁸

POLITICAL WRITINGS (Hans Reiss, ed., 1971). For realist theorists, see for example, KENNETH WALTZ, *THEORY OF INTERNATIONAL POLITICS* (1979); HANS J. MORGENTHAU & KENNETH W. THOMPSON, *POLITICS AMONG NATIONS: THE STRUGGLE FOR POWER AND PEACE* (6th ed. 1985), and THOMAS HOBBS, *LEVIATHAN* (Francis B. Randall ed., Washington Square Press 1964) (1651).

23. Burley, *supra* note 21, at 207-08.

24. Charles W. Kegley Jr., *The Neoidealist Moment in International Studies? Realist Myths and the New International Realities*, 37 INT'L STUD. Q. 131 (1993).

25. Louis Henkin, *The Mythology of Sovereignty*, AM. SOC. OF INT'L L. NEWSL. (ASIL) Mar.- May 1993, at 1, 7.

26. Lawrence Susskind & Connie Ozawa, *Negotiating More Effective International Environmental Agreements*, in *THE INTERNATIONAL POLITICS OF THE ENVIRONMENT* 142-65 (ANDREW HURRELL & BENEDICT KINGSBURY eds. 1992); B.C. Brennan & B. Larschaw, *The Common Heritage of Mankind Principle in International Law*, 21 COLUM. J. TRANSNAT'L L. 305 (1983).

27. See, e.g., Henkin, *supra* note 25; Palmer, *supra* note 1.

28. Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968); Lynton K. Caldwell, *The Geopolitics of Environmental Policy: Transnational Modification of National Sovereignty*, 59 REV. JUR. U.P.R. 693 (1990); see Palmer, *supra* note 1, at 283.

It has come increasingly into vogue to model environmental conflicts as prisoners' dilemmas. Such a conflict arises where the interested parties are bound by situationally imposed logic to act in ways that are not in the best interest of anyone. A change in the "payoffs" to the "players" imposed by a central authority is the solution.²⁹ These assumptions are frequently used to conclude that we need some international plan or organization to manage all of the environmental problems on our "spaceship earth."³⁰ The adoption of stringent international enforcement standards for environmental law is one proposed idealist solution. Philippe Sands, for example, argues that the enforcement of international environmental law must be done on two levels.³¹

First, enforcement is required at the national level because of international treaty obligations. Treaties require states to . . . develop, adopt or modify relevant national legislation, policies and programs through administrative, legislative or other means. . . . Enforcing national compliance is a matter for the public authorities of each state; some states also allow private enforcement through suits brought by citizens.³²

Second, according to Sands, enforcement is required at the international level, "[o]nce there is evidence that a state has failed to uphold an environmental obligation"³³ Thus, Sands expects states to have sufficient internal authority (sovereignty) to be capable of upholding their treaty obligations by sanctioning violations by their citizens; yet, he expects the international system to be able to wield sufficient control over states so that they also can be sanctioned. Sands notes that because of their sovereign interests, states have been unwilling

to transfer much - if any - enforcement power to international institutions. This unwillingness highlights the fundamental tension between the juridical reality of states' territorial sovereignty over their natural resources and the physical reality of ecological interdependence. In a world of shared natural resources it becomes increasingly

29. For a discussion of solutions created by changing the "payoffs," see ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990).

30. BUCKMINSTER FULLER, OPERATING MANUAL FOR SPACESHIP EARTH 49 (1969).

31. Sands, *supra* note 5, at 367.

32. *Id.* at 371-72.

33. *Id.* at 373.

difficult to justify constitutional arrangements that narrowly define states' abilities to enforce either environmental rights or minimum standards of environmental behavior.³⁴

There is a fundamental dilemma in what Sands claims should happen. That dilemma is over sovereignty. It is difficult to see how states can retain sufficient authority (sovereignty) to enforce not only environmental laws, as derived in part through treaty obligations, but all other laws and functions states are expected to perform and still be subject to an external enforcement authority. Additionally, the acceptance of the treaty obligations and the negotiations that precede the acceptance of the text, all have sovereignty as their base. States have not yet come to the point where there is an acceptance of external authority, except in limited instances.³⁵ This is the reason international governmental organizations are formed in the first place and is one of the main reasons for any collective state action. Additionally, states always retain the right to withdraw from collective arrangements, and this too is a manifestation of their sovereignty. The solution then is not to enforce international environmental law by attempting to impose authority over states. Rather, it is for states to realize that it is in their individual and collective self-interests to promulgate and follow regulations that preserve environmental integrity in the long term.

It may be inconvenient that those who degrade the environment and those who suffer from that degradation are not always grouped together within the borders of one sovereign state. However, the lack of an authoritative regulator may not be the heart of the compliance problem. One important method of gaining compliance with a law or agreement, even within sovereign states, is "quasi-voluntary compliance."³⁶ For quasi-voluntary compliance to be successful, individuals must perceive the law or agreement in question is generally in their interest and most other individuals affected by it will comply with it as well, or be penalized. If quasi-voluntary compliance is an important aspect of gaining widespread compliance within sovereign states, then this calls into question any sharp

34. *Id.* at 375.

35. For example, when cost-benefit analysis has shown the limitation on their sovereignty by outside authority has advantages over the continuation of the problem.

36. MARGARET LEVI, *OF RULE AND REVENUE* (1988) (defining "quasi-voluntary compliance" and demonstrating its importance in generating compliance with domestic law); OSTROM, *supra* note 29, at 7; ORAN YOUNG, *INTERNATIONAL COOPERATION: BUILDING REGIMES FOR NATURAL RESOURCES AND THE ENVIRONMENT* (1989). Ostrom and Young discuss the importance of quasi-voluntary in generating compliance with international environmental agreements.

distinction between methods we can use within sovereign states and those we can use in international agreements.

As noted above, it is necessary that successful international law be based on and reflect the contemporary international political system.³⁷ Despite its global concerns and pressing issues, this connection is no less true for international environmental law. Current idealistic literature notwithstanding, international rules of behavior generally, and those which address environmental problems specifically, are predicated on each state exercising sovereignty on behalf of its citizenry, both as a bargaining agent with other states and as the agent ensuring the compliance of its own citizens functioning within its own territory.³⁸ Given the resources that states have under their control, they are undeniably the most important actors in the resolution of transboundary issues.³⁹

States retain the sovereign right to decide for themselves if they are to be bound by international agreements. Though strong efforts have been made to create *jus cogens*, international law remains primarily *jus dispositivum*.⁴⁰ Given this somewhat controversial situation, it would be most productive to begin the search for consensual environmental international law with an understanding of what motivates states generally to enter into consensual arrangements with other states.

III. WHY STATES COOPERATE

People are becoming aware that individual, and by extension, state actions are altering the chemistry of the biosphere and the distribution of species in it, with uncertain and frequently negative effects on themselves and others. Moreover, persons and states alike are likely to change their behavior only as they perceive that a change will benefit them, either directly through improved environmental conditions or indirectly through improved social conditions.

37. Scott & Carr, *supra* note 16. See also Gary L. Scott & Craig L. Carr, *The International Court of Justice and the Treaty/Custom Dichotomy*, 16 TEX. INT'L L.J. 347 (1981) [hereinafter Scott & Carr, *The International Court of Justice*]; Gary L. Scott & Karen D. Csajko, *Compulsory Jurisdiction and Defiance in the World Court: A Comparison of the PCIJ and the ICJ*, 16 DENV. J. INT'L L. & POL'Y 377 (1988); Gary L. Scott & Craig L. Carr, *The ICJ and Compulsory Jurisdiction: The Case for Closing the Clause*, 81 AM. J. INT'L L. 57 (1987).

38. MORGENTHAU & THOMPSON, *supra* note 22, at ch. 9 (discussing of the indivisibility of ultimate authority). See Henkin, *supra* note 25, at 7 (discussing the limitations of the indivisibility of ultimate authority).

39. *But see* Burley, *supra* note 21, at 226.

40. For a discussion of *jus cogens* and *jus dispositivum*, see GEORG SCHWARZENBERGER, *A MANUAL OF INTERNATIONAL LAW* 29 (5th ed. 1967). For an alternative discussion on the emerging use of *jus cogens* in international law, see GERHARD VON GLAHN, *LAW AMONG NATIONS* 583 (6th ed. 1992).

If a state has strong material incentives to take action that seems cooperative, then a state's decision may be based on straightforward economic analysis of its interests without regard to the cooperative content of the actions under consideration. As Alexander notes, cooperation can be more apparent than real.⁴¹ The interests that occasion this apparent cooperation are analogous to the preferences in an assurance game, rather than those in the prisoner's dilemma game so frequently associated with environmental issues. This type of cooperation might be ignored because of the ease with which a cooperative solution is found under these conditions.⁴² We should not make the mistake of supposing that negotiations about this sort of issue can be a model for other sorts of issues.⁴³ We should, however, be careful not to neglect these non-conflicting issues. This form of cooperation, while analytically trivial, may have some decidedly non-trivial effects on future relationships.

Absent a material incentive for unilateral action, issue linkage can often motivate cooperation, even in highly asymmetric and non-social situations. This linkage could be the environmental equivalent of a hostage exchange. Absent either of these two incentives cooperation can still emerge. Cooperation may be the result of a reciprocal relationship in which the exchange is neither contingent nor equivalent, what Keohane calls "diffuse reciprocity."⁴⁴ Diffuse reciprocity might be thought of as social credit—specific reciprocity on the easy payment plan, except that the account may never be explicitly tallied.

Appeals to environmental and social self-interest, then, may be effective in changing behavior. Linkage of one international environmental issue with a different issue between the affected states may also change an offending nation's calculus. Social relationships which insure the mutual acceptance of obligations may be important in effecting issue linkage. Linkage has been found to be important in various issues of

41. Lewis M. Alexander, *Uncertainties in the Aftermath of UNCLOS III: The Case for Navigational Freedoms*, 18 OCEAN DEV. & INT'L L. 333, 334 (1987).

42. Players in the assurance game have individual incentives to act in a manner that yields mutually beneficial results whereas the opposite is true for players in a Prisoner's Dilemma. See PROCEEDINGS OF A CONFERENCE ON LINKING LOCAL AND GLOBAL COMMONS 23-25 (1992); Lisa L. Martin, *Credibility, Costs, and Institutions: Cooperation on Economic Sanctions*, 45 WORLD POL. 406 (1993).

43. See Sebenius, *supra* note 15, at 116 (discussing the inappropriate use of the ozone negotiations and the premature dismissal of the Law of the Sea negotiations as models for negotiations on other issues).

44. Robert O. Keohane, *Reciprocity in International Relations*, 40 INT'L ORG. 4, 19-24 (1986).

international interest including environmental issues.⁴⁵ Keohane explores the linkage of specific international issues with general relationships between the affected states.⁴⁶ But the ability to link an international environmental issue with a general relationship may depend on both the social relationship between the citizens of the states involved and the nature of the issue. Environmental issues should not be lumped together as if they were a single phenomenon. It is important to keep in mind what attributes are common to various environmental issues and what distinctions make them separate kinds of phenomena.

States, like individuals, care about their access to scarce resources. Newton points out that as shared natural resources begin to be perceived as "exhaustible" they become subjects of international tensions.⁴⁷ This is true whether the resource is the space to carry out activities, such as navigable areas of the sea, resources to be harvested such as edible fish or genetic material particular to a species, or a sink to be used for dumping, such as the atmosphere's ability to absorb carbon dioxide, sulfur dioxide and other chemicals. As one state's use of a resource exhausts that resource or begins to subtract from other states' uses the potential for conflict emerges.⁴⁸

Unfortunately, neither the exhaustibility nor the subtractibility of a resource is an objective fact.⁴⁹ Both involve perceptions that emerge from an understanding of the operation of the biosphere and an individual's relation to it. Since the biosphere is imperfectly understood and since everyone's relation to its resources is likely to be different, the chance for a uniform perception of exhaustibility or subtractibility in any resource system is small. Thus, cooperation based on these concepts may be slow in taking shape.

Haas found that an epistemic community with a convergence of values and expert opinion on the proper policy was important in gaining

45. For a theoretical discussion of issue linkage and the solution of prisoners' dilemmas, see Michael McGinnis, *Issue Linkage and the Evolution of International Cooperation*, 30 J. OF CONFLICT RESOL. 141 (1986); see also, Martin, *supra* note 42, at 407 (summarizing of issue linkage and international CPR management).

46. Keohane, *supra* note 44, at 19.

47. W.F. Newton, *Inexhaustibility as a Law of the Sea Determinant*, 16 TEX. J. INT'L L. 369 (1981).

48. See generally OSTROM, *supra* note 29, at 32 (discussing subtractibility).

49. See Newton, *supra* note 47; Christopher D. Stone, *Beyond Rio: "Insuring" Against Global Warming*, 86 AM. J. INT'L L. 445 (1992).

agreements in the ozone and Mediterranean water quality issues.⁵⁰ His findings indicate both the importance and the difficulty of achieving a common understanding. We should expect, then, that conflict over environmental issues, at a minimum, will revolve around both science and resources.

In some cases the capture of exhaustible resources and its effects on another state's use of those resources may be considered more or less legitimate, depending on differences of ideology with respect to property rights. Scholars using experimental techniques have found that some formal inequities can be perceived as fair and therefore acceptable, depending on the basis of the "inequitable" distribution.⁵¹ Therefore, even when the science is clear, the perception of damage or injury may not be, and as Simon has been at pains to point out, it is perceptions that matter to rational actors.⁵²

Rational states have an interest in cooperating with other states in the use of a resource when they value the future use of that resource and when cooperation is perceived as being cost effective in preserving it. Axelrod emphasizes the "shadow of the future" as a concept which assists in the evolution of cooperation based on the valuation of future payoffs (resources) and the expectation of future interactions.⁵³ States may also decide to cooperate when they value some social relationship which they expect will be degraded by a lack of cooperation.⁵⁴ While this decision would be expected to be made on the basis of a cost-benefit analysis, it may not be because the value of social relationships, while appreciated, is difficult to measure.

50. Peter M. Haas, *Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control*, 43 INT'L ORG. 378 (1989); Peter M. Haas, *Knowledge, Power, and International Policy Coordination*, 46 INT'L ORG. 23 (1992).

51. Elizabeth Hoffman et al., *Preferences, Property Rights and Anonymity in Bargaining Games*, Presented at the Workshop on Political Theory and Public Policy, Indiana University (1992). Elizabeth Hoffman & Mathew L. Spitzer, *The Coase Theorem - Some Experimental Tests*, 25 J.L. & ECON. 73 (1982). Elizabeth Hoffman & Mathew L. Spitzer, *Entitlements, Rights and Fairness: An Experimental Examination of Subjects Concepts of Distributive Justice*, 15 J. LEGAL STUD. 254 (1985).

52. Simon, *supra* note 14.

53. ROBERT AXELROD, *THE EVOLUTION OF COOPERATION* 126 (1984).

54. For example, the United States and Canada finally cooperated in going to the International Court of Justice to resolve the Gulf of Maine issue largely because of the deleterious effects that it was having on their overall relationship. See *Delimitation of the Maritime Boundary in the Gulf of Maine Area* (Can. v. U.S.), 1984 I.C.J. 246 (Oct. 12); see also Jan Schneider, *The Gulf of Maine Case: The Nature of an Equitable Result*, 79 AM. J. INT'L L. 539 (1985) (discussing this case between Canada and the United States).

Social relationships based on "diffuse reciprocity" differ from those based on "specific reciprocity" because the value of the exchange may be neither equivalent nor contingent.⁵⁵ Therefore, states may "cooperate" when their action, either alone or in concert with other states, enhances the value of their own resource. They may also act to enhance another state's resource if the other state is likely to act reciprocally to enhance the resource of the first state. Finally, a state may act to enhance the resources of other states if it simply values relations with those states. It may even act in ways that *seem* altruistic, but only if a sufficiently strong social relationship exists.

Based on the discussion above, the ways in which states come to international cooperation on environmental issues can be separated into four pathways. First, as states become individually aware that it is in their best interests to unilaterally change their behavior with respect to environmental degradation, they will begin to do so. We refer to this as individually sufficient interests. Then, as they become aware that their environment is being damaged by another state(s) they may seek to bargain with that other state, to offer equivalent and contingent concessions to the other state for the purpose of motivating it to cease its deleterious behavior, Principle 21 of the 1972 Stockholm Declaration notwithstanding.⁵⁶ We refer to this as "specific reciprocity." Subsequently, as states become aware that their behaviors are detrimental to others with whom they want to live according to rules that limit uncertainty, they may seek to build an international society with acknowledged and accepted rules of environmental behavior. We refer to this as "bounded competition." Then states may take actions in accordance with the common interests of mankind. We simply refer to this as the "common interests of mankind."

These paths to cooperation rely on different levels of interests and social relationships. They span a continuum that runs from complete self interest, with little or no social relationship involved, pathway 1, to minor self interest, with highly developed and comprehended social interests, pathway 4. Even pathway 2, specific reciprocity which relies principally upon value exchanges, also relies on social relationships existing between or among the parties to the negotiation. Without a minimal social

55. Keohane, *supra* note 44, at 7.

56. Principle 21 states, *inter alia*, "States have . . . the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." *Report of the U.N. Conference on the Human Environment*, Stockholm, June 5-16, 1972, U.N. Doc. A/CONF 48/14 (1972), reprinted in 11 I.L.M. 1416, 1420.

relationship the bargaining for tit-for-tat reciprocity could not take place and the parties themselves would have no assurances that their return would be forthcoming. Obviously cooperative structures that do not incorporate an immediate and specific reciprocal exchange must rely even more heavily upon a developed social relationship. Thus, our pathway 3, bounded competition, relies quite heavily upon a combination of self interest and a developed social relationship. Since pathway 4, common interests of mankind, holds little in the way of perceived self interest for states, it must rely almost exclusively upon a highly developed set of social relationships. This pathway, while favored by many idealists, seems somewhat wistful. One day all humans may universally acknowledge a common social bond and always act accordingly. Humans seem to have become aware that they are a single species and consequently have some obligations to their fellow man, but the extent of these obligations has been the subject of some considerable debate and disagreement.⁵⁷ Pathway 4 should not be expected to yield significant environmental regulations. These pathways help to point out different motivations that have been more or less effective in influencing state behavior in certain types of situations. The differences in the four types of motivations should also be helpful in understanding the differing utility of the various pathways in generating cooperation in distinct types of physical situations or in situations where the rigidity or stringency of the proposed environmental regulations vary considerably.

It should not be supposed that the categories outlined above cleanly separate environmental issues and the appropriate cooperation that must be built to solve them. These categories separate aspects of environmental issues. The strongest solution to any case where cooperation seems appropriate or beneficial will incorporate more than one of the categories. Multiple contributing factors are helpful, particularly when each has a probability of generating cooperation that is less than one. For instance, if individually sufficient interests ensure a ninety per cent probability of cooperation by state A with respect to abstaining from behavior damaging to state B, it would be nice to be able to link some issues giving state A some benefit from actions that state B agrees to undertake. Furthermore, it would be better yet if states A and B also have had a strong social relationship. Conversely, environmental cooperation that seems based mostly on social relationships might be enhanced by adding some individual interest motivator. While these categories posit a hierarchy of motivations that are more or less important according to physical and

57. See, e.g., *TRADITIONS OF INTERNATIONAL ETHICS* 10 (Terry Nardin & David R. Mapel eds., 1992).

social factors, they are certainly not mutually exclusive. They are additive.

Our pathways of cooperation then, are based on the concepts of interests and sociality and are designed to separate aspects of environmental issues into categories. Current global environmental issue areas can be arrayed according to a progress scale that ranges from low to high levels of cooperation. Our pathways of cooperation using the concepts of interests and sociality applied to this scale should elucidate incentives and disincentives for cooperation across issue areas and should help explain why some environmental issue areas have succeeded at eliciting cooperation and others have not.

The first concept, that of interests, is designed to separate aspects of environmental issues into categories so that the type of cooperation needed can be determined. In other words, the less the perception of self interest by states in any given environmental issue, the greater the need for truly cooperative behavior. This approach is analogous to a game theorist's determination of the structure of a game⁵⁸ (e.g., is the Cuban missile crisis a game of chicken, of coordination, or a prisoners' dilemma?), but it incorporates a theory of preference specification and does not necessarily involve strategic interaction.

The second concept, sociality, is designed to explain limited social cooperation based on a history or expectation of bounded competition. It theorizes certain socially based preferential tendencies in which states may have found individual utility over time, and relies on the tendency to use indicators or rules of thumb to identify valued individuals and relationships. The concept of sociality is not intended to provide a general explanation of state or human behavior by itself but rather to establish a variable component of the mix of motivations to cooperate that individual state leaders experience in any situation.⁵⁹

Neither conceptual formulation offers a complete description of transboundary cooperation. Together the two concepts attempt to define the conditions that lead to cooperative solutions by showing the extent of cooperation that is necessary and the amount of cooperation that can be expected in a given situation. The concept of sociality complements the concept of interests because sociality is important when individual material interests are insufficient to generate conditions for cooperation.

58. Duncan Snidal, *The Game Theory of International Politics*, 38 *WORLD POL.* 25 (1985).

59. Scott & Carr, *supra* note 16.

IV. SUCCESS COMPONENTS OF CERTAIN ENVIRONMENTAL TREATIES

In the following discussion we will show how the factors of interests and sociality have combined in varying degrees to produce some of the environmental regulations that have been promulgated in recent years. This cursory analysis is meant to be suggestive and not expository. But, it should enable us to add perspective to the question of why some environmental regulatory cooperation has been successful and others have not.

A. The Mediterranean Action Plan

The Mediterranean Action Plan⁶⁰ (MAP) has been hailed as one of the most important advancements in international environmental legislation.⁶¹ Further, MAP is considered to be successful from both international political and legal perspectives due to the constant advancements in the Protocol process made since the initiation of the original Convention in 1976.⁶² This set of agreements, the first under the United Nations Environmental Program's (UNEP) Regional Seas Program, has also served as a model for ten other regional seas programs.⁶³

While MAP is a model of success at getting disparate states to come together to create legal documents for the protection of the environment, it may be considered less successful in getting the parties to those documents to adopt and implement policies that would actually carry out the plan envisioned by the Convention and its subsequent Protocols. As Kutting points out, "[i]f cooperation rather than implementation is seen as the aim of MAP, it can be described as a successful agreement. Unfortunately, cooperation without implementation does not improve the state of the marine environment. Thus MAP lacks effectiveness."⁶⁴

60. MAP consists of an umbrella treaty and four Protocols. Barcelona Convention, *supra* note 18; Barcelona Protocol, *supra* note 3; Barcelona Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency, Feb. 16, 1976, 1102 U.N.T.S. 27, *reprinted in* 15 I.L.M. 306; Athens Protocol, *supra* note 20.

61. PETER M. HAAS, *SAVING THE MEDITERRANEAN: THE POLITICS OF INTERNATIONAL ENVIRONMENTAL COOPERATION* (1990).

62. *See supra* note 60 and accompanying text.

63. THE EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL AGREEMENTS: A SURVEY OF EXISTING LEGAL INSTRUMENT 200-01 (Peter H. Sand ed. 1992) [hereinafter THE EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL AGREEMENTS]. The Regional Seas Programme has been renamed the Ocean and Coastal Areas Programme by UNEP. *See* TONY BRENTON, *THE GREENING OF MACHIAVELLI: THE EVOLUTION OF INTERNATIONAL POLITICS* 96 (1994).

64. Gabriela Kutting, *Mediterranean Pollution: International Cooperation and the Control of Pollution from Land-Based Sources*, 18 MARINE POL. 233, 238 (1994).

In spite of early attention to the problems of Mediterranean pollution only minor progress has been made in the actual clean up of the Mediterranean. That only minor progress was made is particularly true of the control of land-based pollutants.⁶⁵ Because of its widely acclaimed success at bringing together a wide variety of states for the purposes of environmental cooperation, and its somewhat less successful record, to date, at bringing about the actual implementation of the protection of the Mediterranean environment, it presents an excellent subject for inquiry regarding our variables of interests and sociality. The discussion to follow will show that limited self-interest and limited sociality can help explain both the legal successes of MAP and the limited effectiveness of its implementation.

Official notice of significant Mediterranean pollution came as early as the 1960s.⁶⁶ By the early 1970s, the degradation of the Mediterranean had come to the attention of the international press.⁶⁷ The major problems, noted initially by states, were the pollution of the sea and beaches by oil from tanker traffic and the health hazards created by untreated sewage flowing into the Mediterranean.⁶⁸ Recognition of these "visible" problems was followed by alerts on metals, pesticides, and other pollutants, thanks largely to the efforts of the scientific community in the Mediterranean area and UNEP experts.⁶⁹

According to Haas,

Concern about the implications of Mediterranean pollution mounted between the late 1960's and 1974. Initial concern was focused on oil pollution resulting from tanker traffic. Subsequent studies and conferences demonstrated the need for managing a more comprehensive range of sources and channels of pollution, including land-based sources, agricultural runoff, and marine dumping, as well as

65. *Id.* at 233.

66. *See* HAAS, *supra* note 61, at 66. Much of the following discussion is based on Haas excellent work on the development of MAP.

67. *See, e.g.*, John Cornwell, *Is the Mediterranean Dying?*, N.Y. TIMES, Feb. 21, 1971, at 24; *see also* HAAS, *supra* note 61, at 66.

68. HAAS, *supra* note 61, at 66-71.

69. *See id.* at 69. Haas calls these groups of scientists the "epistemic community" and attributes much of the information gathering and consciousness raising to that community of scientists. He also elucidates a policy role for the epistemic community in the bringing about of MAP; *see also* Kutting, *supra* note 64, at 233-34.

pollution transmitted by rivers and through the atmosphere.⁷⁰

Thus by February 1975, when the regional states of the Mediterranean met at Barcelona for the Intergovernmental Meeting on the Protection of the Mediterranean, all parties were sufficiently aware of the dangers and economic costs of pollution to be attuned to creating a solution. By February 1976 the parties had created and signed the first three of the documents known as the Mediterranean Action Plan.⁷¹

Progress continued on MAP with the signing of the Protocol for the Protection of the Mediterranean Sea from Land-based Sources in 1980 and the Protocol Concerning Mediterranean Specially Protected Areas in 1982.⁷² Two additional Protocols are under preparation.⁷³ Further, the party states to MAP have continued to meet regularly to further refine the plans as originally specified. To this point MAP can be considered a legal success. There has been a long period of cooperation leading to the creation of several regulatory documents. Moreover, the cooperation continues in this area where, because of the diversity of states and their historical antipathies, one might not expect much success at forging regional regulations. In this respect, the Mediterranean is a showcase of international environmental cooperation.

Critics of the MAP process, however, have been quick to point out that when faced with actual regulatory policies, the Mediterranean states have been dilatory in carrying out the intended plans.⁷⁴ For example, though the Protocol against Land-based Pollution⁷⁵ was signed and ratified rather quickly by the member states, "no water quality and emission standards have yet been set, nor have the specific compounds and products

70. HAAS, *supra* note 61, at 95.

71. The Convention and the first two protocols were completed in 1976. *See supra* note 60 and accompanying text.

72. *See supra* note 60 and accompanying text.

73. The protocol currently under preparation is the Protocol on the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Sea Bed and its Sub-soil. "This protocol is designed to respond to the obligation contained in Article 7 of the Barcelona Convention." THE EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL AGREEMENTS, *supra* note 63, at 206. The other protocol is the Protocol on Transboundary Movements of Hazardous Wastes and their Disposal, "designed primarily to prevent uncontrolled hazardous waste traffic from developed to developing countries in the Mediterranean Region." *Id.*

74. *The Outlook is Cloudy for the U.N.'s Club Med.* CONSERVATION FOUND. LETTER, July-Aug. 1984, at 1. *See* Kutting, *supra* note 64.

75. *See* Scott & Carr, *supra* notes 16, 60 and accompanying text.

that contain the banned substances been identified.”⁷⁶ Moreover, the parties have not adopted measures relevant to Article 12 of the Barcelona Convention which requires them to “undertake to cooperate *as soon as possible* in the formulation and adoption of appropriate procedures for the determination of liability and compensation for damage resulting from the pollution of the marine environment”⁷⁷ (emphasis added). Nor have they adopted formal procedures for compliance monitoring and control as required under Article 21 of the Convention.⁷⁸ The omissions are serious and auger poorly for the speed with which we can expect the Mediterranean to be cleaned up and protected from further pollution. The critics of MAP are not without justification in their criticisms of the process to date.

The method by which MAP has proceeded is known as the Convention and Protocol process. The Convention and Protocol process involves the establishment of a framework agreement with subsequent refining and implementing agreements or protocols. This process has been hailed by some, mostly political realists, as the only effective way to get states to cooperate. Legal and political idealists have criticized this process as being too slow and ineffective at achieving the needed results for environmental protection. It is easy to see how the results in the Mediterranean might give rise to both perspectives, but an examination of the factors leading to the creation and implementation of MAP suggests which perspective has the most merit.⁷⁹

Both of our variables, interests and sociality, are present in the creation of MAP, but the degree to which each has been present is telling in the progress of Mediterranean protection. As noted above, all of the Mediterranean states were aware of significant pollution problems as early as the 1960's.⁸⁰ Both developed and developing states were aware of the harm that was being done to their own populations and their tourist industries. France and Italy, two of the worst polluters, were instrumental in pushing initially for a clean-up plan for the Mediterranean.⁸¹ Though the states involved had different agendas, based upon political and

76. Kutting, *supra* note 64, at 236.

77. Barcelona Convention, *supra* note 18, art. 12, 1102 U.N.T.S. at 48

78. Barcelona Convention, *supra* note 18, art. 21, 1102 U.N.T.S. at 51. See INTERNATIONAL ENVIRONMENTAL AGREEMENTS, *supra* note 63, at 206-207.

79. For a discussion of the advantages and limitations of the Convention and Protocol Process, see Sebenius, *supra* note 15.

80. “All states suffered from oil on beaches.” HAAS, *supra* note 61, at 68.

81. Kutting, *supra* note 64, at 234; HAAS, *supra* note 61, at 73.

economic reasons, all parties perceived they had sufficient self-interest to begin negotiations and to adopt a pollution abatement and protection plan.

Foreign ministers had other objectives besides cleaning up pollution. French and Italian delegates sought to promote regional environmental legislation compatible with international law, particularly EEC directives. LDCs hoped to receive equipment to monitor pollution and get training in oceanography and pollution control. Environmental concerns also seemed like a good pretext for establishing diplomatic linkages between such otherwise hostile countries as Algeria and France and Israel and the Arab countries. Greece and Spain, returning to democratic governments, also hoped to use environmental cooperation as a lever to assert an open foreign policy.⁸²

Boxer notes that states like Malta, Lebanon, and Israel also used the pollution issue to their political advantage. Malta and Lebanon sought to enhance their international status by promoting the cause of pollution control. Israel saw "an additional opportunity to gain political legitimacy by expanding collaboration with scientific institutions in a number of Mediterranean countries."⁸³

While motives varied and included more than just the concern over pollution, each state involved had reasons, generated by their own interests, in pursuing a clean-up plan for the Mediterranean. Moreover, to states mostly interested in the pollution issues, it seemed that cooperative measures were the only solution. This perspective, though partially incorrect, was fostered by officials of international organizations who desired a regional cooperative solution to the problem.⁸⁴ Interests, coupled with a slight misperception about the need for a cooperative solution, went a long way toward getting states to agree to MAP.

Sociality was also present to some degree in the Mediterranean, in spite of political and economic differences that exist in the area. There seems to have been a sense of "common responsibility to a shared

82. HAAS, *supra* note 61, at 71-72.

83. Baruch Boxer, *Mediterranean Pollution: Problem and Response*, 10 OCEAN DEV. & INT'L J. 315, 322-23 (1982).

84. Haas explains that currents in the Mediterranean were insufficient to carry pollution far from the polluting countries shores, but government officials were unaware of this. While UNEP officials were aware of this fact, they kept silent hoping to achieve a regional solution. "[B]ut they hoped to complete and agreement, so they just smiled and nodded when others characterized Mediterranean pollution as a common problem." HAAS, *supra* note 61, at 70.

Mediterranean heritage.”⁸⁵ Boxer argues that the strength of the community feeling about the Mediterranean was strong enough to overcome political differences and continues to play a role in the legal elements of MAP.⁸⁶ Stjepan Keckes, director of the Regional Seas Program of UNEP, noted:

We had to face the fact that a lot of them don't like each other for what they consider good reasons, but they all love the Mediterranean as a cultural asset, and they recognize its economic value. They all knew they had a problem and that none of them could solve it alone.⁸⁷

In addition to the social relationship developed and the prospect for future relations that this brought about, there were sub-regional social relationships as well. These included those among the EC states that were also Mediterranean coastal states, the Arab states involved, and the LDCs.⁸⁸ There existed then, among the states involved, both sufficient interests and sociality. Together with the information provided by the epistemic community⁸⁹ and the urgings of international organization officials,⁹⁰ these factors culminated in the legal documents designed to save the Mediterranean and to continue negotiations for twenty years.

The implementation of MAP seems to have lagged, however, this may be a good indication that while there were sufficient interests to generate the legal documents, particularly given the added dimension of sociality, the self-interest generated by the problem was not strong enough to overcome competing areas of self-interest and bring about their implementation. The Protocol on land-based pollution has been the most difficult to implement. This Protocol was to have come into full effect by 1995, “when fifty different measures for pollution control have to be set. Only eight of these had been set by 1990.”⁹¹ This Protocol has run headlong into competing self-interests of the states involved. For example, “France and Italy also opposed the protocol's coverage of rivers as the Rhone and Po are major sources of Mediterranean pollution.”⁹²

85. Boxer, *supra* note 83, at 316.

86. *Id.*

87. Daniel S. Greenberg, *Diplomat of Troubled Waters*, 15 INT'L WILDLIFE 41 (1985).

88. HAAS, *supra* note 61.

89. *Id.*

90. Boxer, *supra* note 83.

91. Kutting, *supra* note 64, at 237.

92. HAAS, *supra* note 61, at 112.

Another factor leading to the difficulties over implementation may be that the sociality factor was not strong, stemming mostly from the Mediterranean as a cultural heritage and common possession (*mare nostrum*).⁹³ It is easy to see that while this factor might be strong enough to bring about negotiations among disparate actors, it might not be sufficient to bring about implementation that is difficult to carry out in the face of divergent and competing self-interests. States of greater similarity and with a broad range of political and economic ties, like those of the European Community, might find the implementation stage easier to effect when faced with competing domestic political and economic interests. So just as we find that our two factors of interests and sociality are important in bringing about negotiated agreements, they must be present in a stronger form if they are to bring about the implementation of those agreements.

In spite of the lagging implementation, however, the picture is not entirely grim. According to Keckes, "the Mediterranean is better now than it would have been without the plan and has good prospects for the future."⁹⁴ Brenton reports that there has been significant clean-up of beaches and that more sewage is properly treated than before MAP. Further, oil problems are in abatement because attendant to the first protocol,⁹⁵ equipment for cleaning ships' ballast has been installed.⁹⁶ Thus, some progress has been made, albeit small compared to the overall problems facing the Mediterranean.

MAP has been hailed as successful yet criticized for not being effective. How are we to resolve these two contending views? We suggested above that the theoretical perspective that one takes when viewing world politics has a great deal to do with what one perceives. MAP is a case in point. Legal and political idealists are discontent with approaching environmental problems incrementally and impatient with the lack of progress in such areas as the Mediterranean. Realists, on the other hand, would expect that state sovereignty would naturally make things difficult to accomplish, as states have competing interests that do not

93. Greenberg, *supra* note 87, at 42, provides the following insight into the weak social relationships around the Mediterranean: "When we proposed to save the Mediterranean, enemies put down guns to sign the agreement. And then they picked them up again." (quoting M. Michael Grenon). For a discussion of *mare nostrum*, see Philip Allott, *Mare Nostrum: A New International Law of the Sea*, 86 AM. J. INT'L. L. 764 (1992).

94. Greenberg, *supra* note 87, at 41, (quoting Stjephan Keckes, Director of the Worldwide Regional Seas Program, which is part of the UNEP).

95. BRENTON, *supra* note 63, at 100.

96. *Id.*

always allow them to make rapid progress, even on commonly shared problems.

Haas notes that in putting together MAP,

[s]tates successfully defended their sovereignty. Governments only learned as much as, or were willing to pursue new goals that did not severely interfere with their traditional responsibilities. . . . Namely, the form of learning was that which was least threatening, at least in the short run, to states' pursuit of autonomy and security.⁹⁷

States should be expected to defend their sovereignty and they will continue to do so as long as the world is organized into nation state units.⁹⁸ As Haas goes on to correctly point out, "[t]he organization of the international sphere by nation-states is not in doubt."⁹⁹ Further, any international environmental legislation must be aware of this fact and play on the self-interested nature of states to make the most of social arrangements among them.

Given the political realities of world politics in general, and the Mediterranean region in particular, the Mediterranean Action Plan can be hailed as a success. On the implementation side, keeping these same political realities in mind, we should not be overly pessimistic about the progress that has been made so far. While it has taken nearly thirty years from problem recognition to meager implementation, progress has been made. Social relationships concerning the Mediterranean are in their nascent stage, but can be expected to grow. Moreover, states' self-interest in the issue should increase as the pressure of the global environmental movement continues. While MAP has not met idealist expectations, it is a major step in this world of self-interested sovereign states. MAP was an example of regional cooperation in a highly diverse region. The next issue, that of stratospheric ozone regulation, will show how sufficient interests were generated globally for the bringing about of the Ozone Convention and its attendant protocols.¹⁰⁰

B. Stratospheric Ozone Depletion

The set of agreements to limit substances which deplete stratospheric ozone has been heralded as an example of worldwide

97. HAAS, *supra* note 61, at 228.

98. Scott & Carr, *The International Court of Justice*, *supra* note 37, at 348.

99. HAAS, *supra* note 61, at 228.

100. Montreal Protocol, *supra* note 3 and accompanying text.

environmental cooperation and a model for future negotiations.¹⁰¹ The progress that was made, in dealing with an increasingly menacing global problem, particularly near the end of the 1980s, was indeed impressive. Few problems requiring state cooperation on a global scale move from bare recognition to something approaching solution in less than two decades. The success in agreeing to limit substances that deplete stratospheric ozone appears even more dramatic. Given its resemblance to the infamous “commons” of Garrett Hardin’s influential analysis this should have been a particularly inauspicious candidate for broad international cooperation.¹⁰² While the agreements, particularly the Vienna Convention¹⁰³ and the Montreal Protocol,¹⁰⁴ have been used to illustrate several new concepts about international environmental agreements, we contend that they are more valuable as an illustration of the age-old concept that states begin to recognize their individual interests in negotiating a treaty, or in acceding to one, they do so.

As was the case with MAP, the states concerned about ozone¹⁰⁵ could not solve the situation by acting alone.¹⁰⁶ For any state to fully enjoy the ozone protection, all states must participate in its preservation. This

101. RICHARD E. BENEDICT, *OZONE DIPLOMACY* 3 (1991). Benedict refers to the Montreal Protocol as a “prototype for an evolving new form of international cooperation.” *Id.* at 3. See Sebenius, *supra* note 15 at 113. In reviewing lessons applicable to forming a global climate regime, Sebenius reports that “environmental diplomats have largely looked favorably on the step-by-step, framework/protocol model used for the CFC accords. . . . Yet ensuring significant action to curb greenhouse gas emissions will be a far more difficult task than dealing with . . . the ozone layer.” *Id.* See also Peter M. Morrisette, *The Evolution of Policy Responses to Stratospheric Ozone Depletion*, 29 NAT. RESOURCES J. 793, 794 (1989). Morrisette claims that

[t]he Montreal Protocol has stirred much interest, and both scientists and policy makers have suggested that it can be used as a model for international agreements on other global environmental problems, especially the problem of CO₂ and trace-gas induced global warming. . . . Depletion of stratospheric ozone is an example of both the complicated and the global nature of contemporary environmental problems, and the Montreal Protocol shows that innovative approaches to such global environmental problems are possible.

Id. at 794; see also Peter M. Haas, *Banning Chlorofluorocarbons: Epistemic Community Efforts to Protect the Stratospheric Ozone*, 46 INT’L ORGANIZATION 187 (1992). “The protection of the stratospheric ozone layer is a striking instance of international cooperation.” *Id.*

102. See Hardin, *supra* note 28.

103. Vienna Convention, *supra* note 18.

104. Montreal Protocol, *supra* note 3.

105. In this article “ozone” is used to mean the stratospheric ozone layer. Ozone appears in other places in the biosphere, most notably as a particularly offensive element of tropospheric smog, but this article is referring only to the ozone occurring in the stratosphere.

106. See, e.g., BENEDICT, *supra* note 101, at 1 (discussing the interdependence of countries on the issue of ozone depletion).

fact became increasingly apparent in the two decades after ozone depletion became a subject of policy relevant inquiry. Also, as with MAP, success in the ozone agreements hinged on the self-interested actions of the principal states. Unlike the MAP negotiations, sociality, or what amounted to the reverse of it, may have played a significant role in hindering the progress toward an agreement on ozone.

The concern over chlorofluorocarbons as an ozone depletion agent originated in 1974 when Stolarski and Cicerone published their conclusion that chlorine has a destructive effect on stratospheric ozone.¹⁰⁷ In addition, Rowland and Molina published evidence for their hypothesis that CFCs persist in the atmosphere until they reach the stratosphere where they break down and release large amounts of chlorine.¹⁰⁸ These findings were particularly alarming because of the long-term nature of the danger stemming from both the long atmospheric lifetime of chlorofluorocarbons and the long-term catalytic nature of stratospheric chlorine in the destruction of ozone.

The global ozone layer was known to shield the biosphere from high energy ultraviolet light (UV-B), that was known to be damaging to humans and other living organisms.¹⁰⁹ Still, there was no clear mandate for worldwide action. The science was in the form of hypotheses. Although corroborating evidence existed, there was no clear and complete understanding of the actual mechanisms that take place in the atmosphere.¹¹⁰ CFCs were an important class of chemicals because they were cheap to produce, efficient, and safe in many uses, particularly when compared to the chemicals they replaced.¹¹¹ Scientists, therefore, had

107. Richard S. Stolarski & Ralph J. Cicerone, *Stratospheric Chlorine: A Possible Sink for Ozone*, 52 CAN. J. CHEM. 1610 (1974); see also Steven C. Wofsy & Michael B. McElroy, *HOx, NOx, and ClOx: Their Role in Atmospheric Photochemistry*, 52 CAN. J. CHEM. 1582 (1974).

108. Mario J. Molina & F. Sherwood Rowland, *Stratospheric Sink for Chlorofluoromethanes: Chlorine Atomic Catalyzed Destruction of Ozone*, 249 NATURE 810 (1974). This was the basis of what is often referred to as the Rowland-Molina hypothesis. The Rowland-Molina hypothesis built on the work of James Lovelock, *Atmospheric Fluorine Compounds as Indicators of Air Movements*, 230 NATURE 379 (1971).

109. Paul Crutzen, *A Review of Upper Atmospheric Photochemistry*, 52 CAN. J. CHEM. 1569, 1570 (1974) (stating ozone "provides a shield against lethal ultraviolet radiation"). BENEDICT, *supra* note 101, at 20 (reporting that increased rates of skin cancer, eye cataracts, disruption of agriculture and fisheries, possible climate change, and a number of other negative effects, were all suspected or well established by the time of the Montreal negotiations).

110. BENEDICT, *supra* note 101, at 15 (reporting that negotiators of the Montreal Protocol faced "great uncertainties" in the science of ozone depletion).

111. See KAREN T. LITFIN, *OZONE DISCOURSES* (1994) (presenting a particularly thorough discussion of the evolution of the science of ozone and the policies concerning substances that deplete it).

presented policy makers in CFC-producing or consuming countries with the problem of dealing with a class of chemicals which were of economic as well as health and safety importance but which might be causing long-term damage to a layer of the atmosphere that protected the entire earth.

This early state of knowledge about chemicals and ozone depletion might be expected to yield the same sort of incentives that lead the herders in Hardin's metaphorical "commons" to cause the "tragic" destruction of their own environment¹¹² or the prisoners in the prisoner's dilemma game--so widely applied to environmental issues--to defect, or the individuals trying to form a collective action to free ride on others' efforts to collectively clean up the environment.¹¹³ Each of these analogies predicts that individual decision makers will not act to alleviate their environmental problems without the interference of some outside factor, such as a hegemon, an environmental regime, etc., and generally leads to the policy prescription of international governance or privatization.¹¹⁴

The problem, according to this logic, is that the benefits of actions that cause environmental destruction are always greater than those of cooperation. A user who is doing harm to a commons gets the full benefit of his actions while sharing only proportionately in the costs of the degradation, which is spread among all of the users of the commons. This logic rests on the assumption that the increment of damage that accrues to any particular user of a commons from that user's degrading actions is less than the benefits to that user of his actions, regardless of what other users do. This was the case in the pasture that was Hardin's metaphorical commons, and may be the case in many actual environmental commons. It may even be the situation in the case of ozone. Ozone is indeed a commons, even a common pool resource (CPR), because it is shared both as a UV-B shield and as a sink for chlorine by people who cannot be excluded from using it. Anyone using it as a sink subtracts from the value that all users of its shielding quality obtain.¹¹⁵

The ozone layer, however, has some characteristics that are frequently ignored by those who predict the destruction of commons. These characteristics may have contributed to each and every producer or consumer of ozone depleting substances having a strong interest in reducing their own as well as others' emissions of those chemicals. Each

112. Hardin, *supra* note 28.

113. OSTROM, *supra* note 29 (discussing widespread application of these notions as "models" of environmental issues, and of the dangers in doing so).

114. *Id.* at 10.

115. *Id.* at 30 (discussing and defining CPRs).

and every user of ozone as a sink also depends on the availability of ozone as a shield.¹¹⁶ No reduction in the use of ozone as a sink by any one user increases the incentive for other users to increase their use of it as a sink.

The benefits to any producer or consumer of CFCs have always been reasonably well known and concentrated while the costs of producing and releasing CFCs were into the 1980s uncertain,¹¹⁷ but thought to be diffuse.¹¹⁸ Of course, both the costs and benefits of any environmental action are based on perceptions. The benefits of CFC production are largely economic¹¹⁹ while the benefits of CFC use are both economic and related to safety.¹²⁰ The benefits of CFC production and use are therefore immediate and accrue solely to the producer or user and were well understood in 1974. If anything, these benefits intensified during the 1980s as CFC use increased.¹²¹ The costs of CFC production and use were different because of the uncertainties and the diffuse nature of the damage.

Initially it appeared that any country considering restrictions on CFCs would bear a significant cost to generate uncertain future benefits that would be shared by the world as a whole.¹²² This might have indicated to a rational policy maker that no action was the best strategy based on the incentives.¹²³ But the scientific community's understanding of the

116. *Id.* at 35. Ostrom does realize the extent to which variations in the dependence of users on a resource effect variations in success in managing those resources. *Id.*

117. *See, e.g.*, BENEDICT, *supra* note 101, at 13-18.

118. Ozone depletion was frequently discussed as varying by latitude and season, but not by locality. *See, e.g.*, Eigil Hesstvedt, *Reduction of Stratospheric Ozone from High-flying Aircraft, Studied in a Two-dimensional Photochemical Model with Transport*, 52 CAN. J. CHEM. 1592 (1974); Julius London & Jae H. Park, *The Interaction of Ozone Photochemistry and Dynamics in the Stratosphere, A Three Dimensional Atmospheric Model*, 52 CAN. J. CHEM. 1599 (1974).

119. While the production of CFCs was a major economic activity, "the immediate beneficiaries of the London Revisions would be the world's largest chemical companies" because "phasing-out CFCs meant a guaranteed market for substitutes, a market that favored the chemical giants with their large research budgets and laboratories." LITFIN, *supra* note 111, at 155.

120. *See Fluorocarbons and the Environment: Report of the Federal Task Force on Inadvertent Modification of the Stratosphere (IMOS)*, COUNCIL ON ENVTL. QUALITY 93-96 (June 1975) (discussing the safety aspects of CFCs relative to substitutes).

121. *See, e.g.*, BENEDICT, *supra* note 101, at 25-27, 48.

122. *See* BENEDICT, *supra* note 101, at 201 (commenting on the uncertainty facing negotiators as the Montreal negotiations proceeded). For a discussion of the global nature of this uncertainty, see also *Protection Against Depletion of Stratospheric Ozone by Chlorofluorocarbons*, NAT'L ACAD. SCI. 133 (1979).

123. Only isolated concrete actions took place in limiting CFCs for more than a decade after 1974. For example, the United States, through the 1976 Toxic Substances Control Act, Pub. L. No. 94-469, 90 Stat. 2003 (1976) (codified as amended at 15 U.S.C. §§ 2601-2629 (1982) and the Federal Food, Drug, and Cosmetic Act, 21 C.F.R. §§ 2.125, 173.345, 189.191, 300.100, 500.49, 700.23, 801.417; 40 C.F.R. §§ 712.1.-5, 762.1.-21 banned the use of

chemistry of chlorine and bromine in the atmosphere changed, thus supplying the incentive for nations to act.¹²⁴

During the 1980's particularly after the signing of the Montreal Protocol in 1987,¹²⁵ researchers posited with increasing confidence that these and other chemicals, including CFCs used as refrigerants and solvents, halons used as fire extinguishers, bromides used as fumigants, and other products such as carbon tetrachloride, were currently depleting stratospheric ozone and that the amount of these chemicals already released into the atmosphere would likely do significant damage to the stratospheric ozone layer for decades to come.¹²⁶ They also learned that while these chemicals disperse throughout the entire stratosphere, so that the potential for damage is worldwide, the destruction of ozone is more pronounced in the presence of ice crystals in polar regions and on sulfate particles in other regions.¹²⁷ Additionally, while the ozone depletion, culminating in ozone "holes", is more serious at the poles, significant reductions have been reported at lower latitudes as well.¹²⁸ Potential health effects of increased UV-B radiation such as skin cancer, cataracts and suppression of the immune system were recognized.¹²⁹ Other environmental effects, such as destruction of phytoplankton and the ensuing destruction of the global food chain on which it is based were also recognized.¹³⁰

The story that scientists were telling during this time depicted unacceptably large costs from the chlorine already released into the atmosphere. Any more chlorine releases might be disastrous. The consequences of ozone depletion may have caused policy makers to look at the risk with what Slovic, Fischhoff, and Lichtenstein have called

nonessential CFCs in aerosols effective December 1978. For a further discussion of this matter see Morrisette, *supra* note 101, at 805. See also Protection Against Depletion of Stratospheric Ozone by Chlorofluorocarbons, *supra* note 122, at 134.

124. See LITFIN, *supra* note 111, at 117-77; BENEDICT, *supra* note 101 (presenting discussions of the changing scientific consensus on stratospheric ozone and the compounds that deplete it).

125. See Montreal Protocol, *supra* note 3 and accompanying text.

126. See, e.g., BENEDICT, *supra* note 101, at 9-22, 108-17; LITFIN, *supra* note 111, at 117-76 (discussing the development of the science of ozone and the perceptions of this science by policy makers).

127. See LITFIN, *supra* note 111, at 131.

128. See, e.g. Warren E. Leary, *Ozone-Harming Agents Reach A Record*, N.Y. TIMES, Feb. 4, 1992, at C4.

129. LITFIN, *supra* note 111, at 56.

130. See Ian H. Rowlands, *Ozone Layer Depletion and Global Warming*, 16 PEACE & CHANGE 260 (1991) (discussing the environmental effects of ozone depletion and its potential social and political consequences).

"dread."¹³¹ The benefits of CFCs were also declining during this time. Acceptable alternatives were being introduced with the prospect that others would be coming along soon.

With the change in science came a change in interests. It was certainly in the interest of every state to try to persuade other states to limit their use of CFCs, but now it was also in the interest of every state to reduce their own use of CFCs regardless of what other states did. While no state could solve the problem alone, each state could make a worthwhile contribution to their own safety. United States officials estimated that "between 1986 and 2075 the deaths of 993,000 Americans, whose lives are valued at one point three trillion, can be avoided with a twenty per cent cut in CFC use. Transition costs are not thought to exceed four billion."¹³²

Indeed, we see that the United States took two unilateral steps to reduce the production of CFCs, one in 1978¹³³ to limit non-essential uses of CFCs and another in 1992¹³⁴ to eliminate the use of all ozone depleting chemicals ahead of the previous schedule. In 1987, during the Montreal negotiations, the United States Senate considered taking unilateral action if the protocol that emerged was not sufficient.¹³⁵ Germany, the Netherlands, and Denmark took unilateral actions to eliminate the use of ozone depleting chemicals more rapidly than the United States.¹³⁶ Morrisette claims that the "international response clearly followed from the concern raised in the United States, Canada, Sweden, and other countries which had taken unilateral action to control CFCs in the 1970s."¹³⁷

These unilateral actions demonstrate that some states found sufficient reason to act regardless of any multilateral action, both for the intrinsic value of the action and to demonstrate to other states that their grave assessment of the situation was sincere. The largest change in attitudes seems to have come in the wake of the Ozone Trends Panel report released on March 15, 1988¹³⁸ which indicated strong evidence for chlorine

131. Slovic et al., *Facts and Fears: Understanding Perceived Risk*, in SOCIETAL RISK ASSESSMENT: HOW SAFE IS SAFE ENOUGH? 181-216 (1980). Morrisette utilizes the concept of "dread" in his discussion of the ozone debate. See Morrisette, *supra* note 101, at 814.

132. Mark Crawford, *Ozone Plan Splits Administration*, 236 SCI. 1052, 1053 (1987).

133. See *supra* note 126 and accompanying text

134. *Id.*

135. Haas, *supra* note 101, at 207.

136. LITFIN, *supra* note 111, at 168.

137. Morrisette, *supra* note 101, at 794.

138. See Steven J. Shimberg, *Stratospheric Ozone and Climate Protection: Domestic Legislation and the International Process*, 21 ENVTL. L. 2175, 2190 (1991).

causing significant reduction of stratospheric ozone over North America and Europe. As a result of the Ozone Trends Panel report, pressure for a phaseout of CFCs began to mount.¹³⁹ DuPont, announced its intention "to get out of the chlorofluorocarbons business entirely" shortly thereafter because of the Ozone Trends Panel report, honoring a commitment made years earlier.¹⁴⁰ British Prime Minister Margaret Thatcher reversed the long standing resistance of the British position after consultation with the Stratospheric Ozone Review Group (SORG) which had published an executive summary in June 1988 supporting the Ozone Trends Panel report findings.¹⁴¹

The progression of the negotiations to control substances that deplete the stratospheric ozone layer to a treaty with a strong protocol may usefully be analyzed using the concepts of interests and sociality, although in a way different than with MAP. The progress on ozone negotiations can be thought of as roughly approximating the progress that was made in understanding the threat to all human existence caused by release of ozone damaging substances. As states became increasingly aware that they were damaging themselves by the production and use of these chemicals, they became aware of their interests and took unilateral action to stop their own destructive behaviors. They simultaneously cooperated in a multilateral actions to protect the ozone. While ozone like the Mediterranean, could not be cleaned up by any state individually, each state's action seemed more and more likely to yield a positive payoff for itself. The likelihood of a positive payoff results from two aspects of the ozone "commons." First, ozone began to be perceived not merely as an important interest but as vital to the survival of each and every one of us. Beyond considerations of skin cancer and immune system problems, the destruction of plant life could well jeopardize life on earth.¹⁴² Those who released ozone depleting substances began to see themselves as not only degrading the environment but as performing potentially suicidal acts. Second, the reduction in use of ozone depleting substances does not encourage others to use more.

In the case of many commons, when one user takes less, other users may take more. Ozone depletion is different because it is a by-product of other activities. There is no direct benefit from depleting ozone. Incentives to deplete ozone only arise when an ozone depleting

139. BENEDICT, *supra* note 101, at 111.

140. William Glaberson, *Behind Du Pont's Shift on Loss of Ozone Layer*, N.Y. TIMES, Mar. 26, 1988, at 41.

141. Haas, *supra* note 101, at 216.

142. L. DOTTO & H. SCHIFF, *THE OZONE WAR* 31 (1978) (discussing the possibility of the extinction of species due to ozone depletion).

substance or process is cheaper or more convenient for the user than a nondepleting substitute. The use of ozone depleting substances and processes yields no intrinsic benefits. In contrast, depletion of the fish stock in a fishery is often seen as a by-product of fishing. The difference is that taking fish always yields economic benefits, regardless of the "substitutes" to fishing that may exist. The reduction of a state's production and use of an ozone depleting substance does not encourage other states to produce and use these substances. Instead, the production and use of ozone depleting substances may be reduced through the introduction, or price reduction, of a substitute. In fact some developing nations responded by reducing their consumption of CFCs ahead of schedule because they did not want to invest in an obsolete process. In addition, the availability of new and cheaper substitutes persuaded many developing nations to reduce consumption of CFCs.¹⁴³ Unfortunately, although individually sufficient interests pushed the negotiations forward, the conditions of sociality among several of the parties retarded them. In some relationships, the rule governed competition that we claim to be fundamental to sociality had recently broken down with respect to ozone. In other relationships there was an old history of behavior outside the bounds of sociality.

The approximation breaks down in two instances. England and France were particularly resistant to the emerging scientific consensus over the dangers of CFCs. They denied the scientific conclusions until 1988.¹⁴⁴ China and India, along with some developing states, resisted the idea that they should be denied the same benefits accruing from the use of CFCs which the developed states had already enjoyed. India was particularly adamant that developing states not return to a position of technological inferiority just after they had acquired CFC technology.¹⁴⁵ Both of these problems in the negotiations resulted from the failure of the states involved to develop a relationship that included a high degree of what we are calling "sociality."

This failure may seem surprising given the close relationship between the United States and Western Europe. However, the issue of ozone between United States on the one hand, and England and France on the other, had a history of apparent deception concerning ozone that gave England and France special reasons to doubt the veracity of American

143. See LITFIN, *supra* note 111, at 142, 159.

144. See BENEDICT, *supra* note 101, at 104, 114.

145. *Id.* at 188-96.

warnings on that issue.¹⁴⁶ Some of the developing states were requested to abstain from such useful and affordable chemicals as CFCs, just as they were acquiring them. This appeared to be “environmental colonialism;” an attempt to keep the developing states in a position of disadvantage.¹⁴⁷

England’s and France’s efforts to operate supersonic transports (SSTs) on the North Atlantic route in the early 1970s explain their attitudes regarding the ozone issue.¹⁴⁸ At that time the United States through Boeing’s advanced SST program, England and France, cooperatively through the Concorde, and the Soviet Union, were competing to develop SSTs which were assumed to be the coming generation of commercial air transports. The stakes in this competition were high and success for the Europeans would have meant that they had overcome the dominance of the United States in the commercial aircraft industry.¹⁴⁹ Many people in the United States opposed the introduction of supersonic transports, regardless of whether they were American, European, or Soviet. Opponents of the SSTs based their opposition on economic and environmental grounds.¹⁵⁰

The environmental danger was brought to the attention of policy makers and the public through the work of such scientists as James McDonald and Harold Johnston.¹⁵¹ The United States finally killed the United States SSTs, leading to the cessation of European efforts. Claims made by United States scientists that SST flights would deplete the ozone and cause increased skin cancers in the United States led to the demise of the United States SSTs.¹⁵² Although effective, this argument proved to be incorrect. Actually, the SSTs would actually have *made* small amounts of ozone at the altitudes which they were projected to fly.¹⁵³

146. For a good discussion concerning the problematic relationship between the three states, see DOTTO & SCHIFF, *supra* note 142, at 297. See also Morrisette, *supra* note 101, at 801.

147. See BENEDICT, *supra* note 101, at 189.

148. This connection is noted by Benedict. See BENEDICT, *supra* note 101, at 32.

149. MEL HORWITCH, *CLIPPED WINGS: THE AMERICAN SST CONFLICT* 193 (1982). “Across the Atlantic with their Concorde program, the British and French appeared to be making a determined effort to wrest from the United States its post-World War II dominance of the aviation industry.” *Id.*

150. For a discussion of the opposition to the SST program, based on a variety of environmental and economic concerns, see HORWITCH, *supra* note 149, at 215.

151. The above discussion of the contributions of these and other scientists to the demise of the SST program, and of the history of the United States, England, and France, and the ozone depletion problem is based on DOTTO & SCHIFF, *supra* note 142.

152. DOTTO & SCHIFF, *supra* note 142, at 61.

153. *Id.* at 2, 117.

The British and French never took the SST ozone threat seriously. They believed the United States created this ozone threat in order to maintain United States dominance in the aircraft industry.¹⁵⁴ When the United States used ozone damage as a reason to cap or reduce the sale of CFCs, the British and French questioned the United States' motives, since the British and French had gained a considerable market share in CFCs. They suspected that DuPont, the major United States manufacturer of CFCs, had a secret replacement for CFCs and that the United States was pushing the issue to advance the commercial interests of one of its major companies.¹⁵⁵

England and France were the largest holdouts among the industrialized countries, alleging that they did not believe the scientists' claim of ozone danger.¹⁵⁶ Prime Minister Thatcher changed England's position once she received information from British scientists validating the legitimacy of the American scientific findings of danger. American action in the SST issue may have destroyed a portion of the social relationship between the British, French, and the Americans. By breaking the legitimate rules linking scientific conclusions about safety with commercial interests, the United States may have sacrificed the sociality which stimulates cooperation for mutual benefit.

When the United States appeared to manufacture "scientific" threats to the environment and to health as a tool of commerce, they breached the rules of commercial competition. Although the inaccurate science of ozone depletion by SSTs increased awareness of the uncertainties of science, France's and England's suspicions, and particularly the reluctance of Prime Minister Thatcher to accept any science not endorsed by British scientists, indicates a deeper problem. The damage to the sociality between the United States, England, and France, caused by the SST misadventure, had to be overcome before England and France could be influenced by American scientists in assessing their own interests in controlling substances that deplete the ozone.

India and China acceded to the treaty when benefits from reducing their use of CFCs increased. Although the principal issue was the availability of new technology to developing states, a fund to defray the costs of changing to substitutes was also important.¹⁵⁷ India's environment

154. *Id.* at 116.

155. See BENEDICT, *supra* note 101, at 23 (discussing the relationship of SSTs to British and French suspicions, as well as the position of England and France in the CFC market).

156. *Id.*

157. For a discussion of the factors that influenced India and China to change their positions, see BENEDICT, *supra* note 101, at 188.

minister, Maneka Gandhi, objected to any agreement that would leave the developing states dependent on foreign technologies, arguing “we have a problem [about] turning into a client state.”¹⁵⁸ Malaysia’s Minister of Science, Technology, and Environment has been quoted as claiming that “denying access to modern technology amounted to ‘environmental colonialism.’”¹⁵⁹ “The Malaysian negotiator at Montreal . . . characterized the treaty as ‘inequitable.’”¹⁶⁰ The process did, however, provide a large fund for the developing states, and for assistance in obtaining new technology.

Although both India and China, along with other developing states, were interested in technology transfers and financial assistance, they did not hold identical positions and China publicly stated satisfaction (after a commitment of money and technology) before India did so.¹⁶¹ The developing states were in a very different situation from the industrialized states. When Indian “officials in private conversations had characterized the issue as a ‘rich man’s problem--rich man’s solution,’”¹⁶² there was a certain veracity to this characterization. The developing states used a relatively small amount of CFCs.¹⁶³ Unlike the industrialized states, the developing states could make very little difference in the ozone by changing their present usage. In addition, unlike the industrialized states, affordable alternatives to CFC’s were not a certainty to the developing states. Obviously, the developing states had little interest in changing their immediate behavior, since they were being asked to make sacrifices by states that had grossly exploited them in the past and with whom they had little history of bounded competition.

Interests and issues, of course, do not present themselves. Individuals avail themselves of reputed facts and sometimes with extreme effort make issues out of them. Individuals, therefore, make a difference in every effort to formulate international law on each new environmental issue. Just as McDonald and Johnston were of fundamental importance in adding ozone depletion to the list of concerns about the SSTs, Tolba was

158. *Id.* at 189.

159. *Id.*

160. *Id.* at 100.

161. *Id.* at 196.

162. BENEDICT, *supra* note 101, at 100-01.

163. India and China accounted for only two percent of the world CFC consumption in 1986, and the remainder of the LDCs consumed only fourteen percent. Haas, *supra* note 101, at 199 (citing James K. Hammitt et al., *Product Uses and Market Trends for Potential Ozone-Depleting Substances, 1985-2000*, RAND Corporation, R-3386-EPA, May 1986; and U.S. Government Accounting Office, *Stratospheric Ozone*, GAO/RCED-89-49, February 1989).

an integral part of the success in bringing the negotiations on substances that deplete the stratospheric ozone layer to the stage where many states have acceded to a treaty requiring major changes in behavior. But just as surely as Tolba was instrumental, he worked in an atmosphere where strong interests were emergent—an emergence that was partly facilitated through his efforts.

Interests do not tell the whole picture, however. Certainly the factors identified by Richard Benedict as important lessons from the ozone negotiations were important in bringing about the London¹⁶⁴ and Copenhagen¹⁶⁵ Amendments.

A factor that should not be overlooked in examining these negotiations is the emergence of a state interest in limiting its emissions of stratospheric ozone depleting chemicals. We do not maintain that this emergence was not fitful nor that the perceptions of interests were identical, but merely that an understanding of the nature of this environmental problem gave states a sufficient interest in action to deal specifically with it. We also maintain that cooperation on controlling substances that deplete ozone was stifled by a lack of sociality between some of the parties.

V. CONCLUSION

This article has undertaken to demonstrate that idealistic approaches to international law and politics notwithstanding, effective international environmental regulations, require sufficient *interests* on the part of the relevant states. In addition, a perception of *sociality* amongst the parties can heighten their sense of long-term self-interest and increase their desire to cooperate on environmental issues.

Our theoretical discussion of the reasons why states cooperate indicated that three of the four pathways to environmental cooperation; individually sufficient interests, specific reciprocity, and bounded competition, were more likely to yield cooperation on environmental issues than idealist appeals to the fourth pathway, the common interests of mankind.

Our two case studies of successful “convention/protocol” approaches to two distinct and difficult environmental issues have demonstrated that states can come to a self-interested perspective for a variety of reasons. The most obvious reason has to do with threat

164. Montreal Protocol Parties: Adjustments and Amendments to the Montreal Protocol on Substances that Deplete the Ozone Layer, June 29, 1990, 30 I.L.M. 537.

165. Montreal Protocol Parties: Adjustments and Amendments to the Montreal Protocol on Substances that Deplete the Ozone Layer, Nov. 25, 1992, 32 I.L.M. 874.

perception of the immediate problem. In the Mediterranean, states considered both cultural and economic self-interests in creating solutions to the pollution problem. In the case of stratospheric ozone depletion, the perception of health hazards was high amongst most participating states.

On both issues, the epistemic community helped create an awareness that environmental problems were sufficiently serious to involve a state interest in their solution. Because these environmental problems did not lend themselves to unilateral or bilateral solutions, multilateral or global cooperation was seen as necessary by most parties.

In both issues, however, self-interest for some states had to be generated in a variety of other ways. Technology transfers, perceptions of international status gains, and side payments, all helped generate sufficient self-interest in actors not originally interested in cooperating.

Sociality was particularly important to increasing the interest of states in the Mediterranean. The existence of sociality within the epistemic community enhanced the solidarity of the Mediterranean States' position in presenting a coherent and convincing set of information to policy makers. The various states had sub-regional interest groupings that also enhanced their feelings of sociality relevant to the problem. The Ozone situation was rather different with respect to sociality. As explained above, past social relations over the ozone issue among some of the parties had generated a sense of distrust. Therefore, sociality was partially negated as a factor in these negotiations.

While the two successful negotiations above have some points of comparability with each other, one must be cautious about attempting to see any successful negotiation as a "model" for any other negotiation. Environmental problems are not a single phenomenon and while sufficient self-interest and sociality have played significant roles in each of the issues presented above, it should be noted that they did so in different ways.

Political and legal idealists will undoubtedly continue to urge states to cooperate for the sake of all mankind. This does no harm and may eventually lead to a global consciousness. In the meantime, however, we live in a world dominated by states. Leaders see the interests of their states in a variety of ways, but sufficient self-interest still remains the strongest motivating factor in international cooperation. For international environmental law to be successful, not only in the rule making phase, but in the implementation phase as well, must play on this fact. Generating state interest about the need to stop environmental degradation is difficult and time consuming in a rapidly degrading global environment. However in our world of states, it is the *sine qua non* of effective environmental protection.