2006

International Treaty Enforcement as a Public Good: Institutional Deterrent Sanctions in International Environmental Agreements

Tseming Yang
Santa Clara University School of Law, tyang@scu.edu

Follow this and additional works at: http://digitalcommons.law.scu.edu/facpubs

Part of the Law Commons

Automated Citation
INTERNATIONAL TREATY ENFORCEMENT AS A PUBLIC GOOD: INSTITUTIONAL DETERRENT SANCTIONS IN INTERNATIONAL ENVIRONMENTAL AGREEMENTS

Tseming Yang*

INTRODUCTION .................................................................................... 1132
I. A BRIEF OVERVIEW OF THE PROBLEM OF TREATY ENFORCEMENT .......................................................... 1134
   A. The Difficulty of Coercing States: Traditional Sanctions Options .......................................................... 1135
      1. Countermeasures: Retorsion, Reciprocal Action, and Reprisals ................................................ 1135
      2. Membership Sanctions .............................................. 1136
      3. Treaty-Based Mechanisms: Bilateral and Collective Sanctions .................................................. 1137
   B. Alternatives to Institutional Deterrent Sanctions ............ 1139
      1. Unilateral Sanctions .................................................. 1139
      2. Compliance Management ........................................ 1141
      3. Transformation of Identities, Interests, and Norms ................................................ 1145
II. TREATY ENFORCEMENT AS A PUBLIC GOOD .................. 1149
   A. The Nature of Public Goods ............................................ 1149
   B. The Public Good Characteristics of International Treaty Enforcement .......................................................... 1150
      1. Instrumentally Assuring Treaty Compliance: Treaty Effectiveness and Preserving the Benefit of the Bargain ............................................................ 1150
      3. Strengthening Conformity with the Rule of Law .... 1153
III. THE PROBLEM OF GENERATING THE “ENFORCEMENT GOOD” ........................................................ 1155
    A. Strategic Behavior in Treaty Enforcement .................... 1156
    B. The Second-Order Collective Action Problem: Carrots, Sticks, and the Distinction Between Ex Post and Ex Ante Approaches to Compliance ........................................ 1157

* Professor of Law, Vermont Law School. I am grateful to Richard Brooks, Sanford Gaines, Shi-ling Hsu, Gregory Johnson, Peter Spiro, Pamela Stephens, and Oran Young and the participants of colloquia at Hofstra University Law School and the University of Pittsburgh Law School for valuable comments on earlier drafts and presentations of this manuscript. Research assistance was provided by Melissa Armbrister, John Cooke, Jennifer DeLyon, Valerie Diden, David Pocius, Jeremy Hojnicki, Andrea Silberman, and Michael Stabler.
C. The Normative Foundations of Compliance and Enforcement............................................................ 1159
1. The Dual Nature of Treaties and the Predominance of Instrumentalist Perspectives ...... 1160
2. The Problem of Valuing the Benefits of Enforcement .......................................................... 1162
3. The Authoritative Nature of Treaty Norms ...... 1164

IV. Generating the "Enforcement Good" .................. 1165
A. Changing the Enforcement Calculus .................. 1165
   1. Adjusting the Incentives to Engage in Enforcement.......................................................... 1166
   2. Changing the Value of Enforcement and the Rule of Law......................................................... 1167
B. Promoting Entrepreneurial Enforcement ..................... 1172
C. Treaty Design and the Structure of Regulation ......... 1173

V. An Examination of the 1997 Kyoto Protocol's Noncompliance Mechanism .................. 1176
A. An Overview of the Noncompliance Mechanism .......... 1177
B. A Critique ................................................................. 1179
   1. Strategic Behavior.................................................... 1179
   2. Second Order Collective Action .................. 1181
   3. Norms and the Rule of Law .................. 1181
C. The Underlying Problem of Treaty Design ............. 1183

Conclusion ................................................................. 1184

INTRODUCTION

The problem of treaty enforcement is as old as international law itself.¹ For multilateral environmental agreements, however, the need to police treaty commitments has gained greater attention because of the increased importance of the subject matter: pressing global environmental problems as varied as ozone depletion, global climate change, loss of biodiversity, and the international trade in hazardous wastes. Unfortunately, the problem has remained generally intractable. Some specialized treaty systems, such as the World Trade Organization, have

been able to create apparently effective enforcement mechanisms. None has created a comprehensive solution to the problem, however, especially not one readily applicable to multilateral environmental agreements. The contemporary reality remains that the vast majority of treaty violations go unanswered by the international community.

In the environmental field, attention has focused on the proactive management of treaty compliance and the use of noncoercive mechanisms. The noncompliance process of the Montreal Protocol on Ozone-Depleting Substances and the citizen submissions process of the North American Agreement on Environmental Cooperation reflect such efforts. The long-term success of these approaches remains to be seen. Nevertheless, two of their most prominent proponents, Antonia Handler Chayes and the late Abram Chayes, went as far as to claim that “[t]he effort to devise and incorporate [deterrent] sanctions in treaties is largely a waste of time.” Given the Chayes' well-known past work and their influence in the area of “compliance management,” this statement cannot be taken lightly. But what about the effectiveness of environmental treaties and the institutional nature of enforcement?

This Article approaches the issues through the lens of two general questions. First, what are the functions of treaty enforcement and institutional deterrent sanctions? Second, what are the obstacles to the effective deployment of institutional deterrent sanctions in response to noncompliance? This Article elaborates on the instrumental purposes of enforcement as well as its independent normative function. Much of the analysis follows the recent stream of works that combines both international law and

---


international relations theory. These works offer a rich understanding of the conduct of states and the functioning of international legal regimes.

Part I of the Article first provides a brief overview of the problem of treaty enforcement, including traditional sanctions options and alternative approaches: unilateral sanctions, compliance management, and transformation of identity and interests. Part II examines the public good attributes of environmental treaty enforcement, and Part III then considers the associated problems of generating enforcement actions, primarily obstacles to collective action, the distinct nature of deterrent sanctions as ex post rather than ex ante compliance measures, and the frailty of the normative foundations of treaties. Part IV considers the implications for improving the effectiveness of enforcement mechanisms and possible avenues for creating the "enforcement good." Particular options include altering incentives to engage in enforcement as well as changes in the value of enforcement actions; promoting entrepreneurial enforcement and improving the design of treaty regimes are less obvious choices. Part V critiques the recently adopted noncompliance mechanism of the Kyoto Protocol to the Framework Convention on Climate Change.

Institutional deterrent sanctions are unquestionably difficult to deploy appropriately and effectively; nevertheless, they will remain important to prevailing contemporary practice and thinking for improving the effectiveness of environmental agreements.

I. A BRIEF OVERVIEW OF THE PROBLEM OF TREATY ENFORCEMENT

The use of the term "enforcement" in international law literature has not been consistent. It may describe efforts to expose and document failures of compliance, various bilateral interactions designed to promote compliance, private boycotts by nongovernmental organizations, and "managerial," nonpunitive efforts designed to persuade and help offend-

ing states come back into compliance. This Article employs the most common understanding of the term, shaped primarily by its use in national legal systems: the use of institutionally authorized deterrent sanctions to effect compliance with the law.

A. The Difficulty of Coercing States: Traditional Sanctions Options

The root cause of the enforcement problem is the anarchic nature of the international system. A popular misconception of existing sanctions mechanisms portrays them as weak, nonexistent, or otherwise ineffective. The natural solution is to create new or stronger sanctions mechanisms. This popular belief misunderstands the character of anarchy and the options available under existing international law: countermeasures, membership sanctions, and treaty-based mechanisms.

1. Countermeasures: Retorsion, Reciprocal Action, and Reprisals

Countermeasures are self-help acts that customary international law permits states to take in response to a wrongful act. They are similar to self-help remedies such as self-defense in tort or criminal law. Countermeasures are commonly classified into three groups: retorsions, reciprocal actions, and reprisals.

Retorsions are unfriendly but lawful acts that would otherwise be permissible even absent a treaty breach. In response to a state’s violation of its obligations under an international trade agreement, for


13. Because they are usually imposed unilaterally, countermeasures can be considered a subset of unilateral sanctions. See infra Part I.B.1.


15. See id. at 5. Retorsions exclude reciprocal acts.
example, the injured parties could suspend unrelated discretionary economic aid.\textsuperscript{16}

Reciprocal actions consist, as their name suggests, of acts of reciprocal noncompliance—a reciprocal breach of the treaty obligation.\textsuperscript{17} For example, a state that imposes import tariffs in violation of its obligations under an international free trade agreement may face the reciprocal suspension of tariff concessions by other treaty parties.

Finally, reprisals (also termed retaliation) are more serious responses to noncompliance. Reprisals ordinarily would not be permissible under international law, but they become lawful by virtue of the initial treaty breach. To qualify as reprisals, the acts must be “necessary to terminate the violation[, to] prevent further violation, or to remedy the violation.”\textsuperscript{18} They also must not be “out of proportion to the violation and the injury suffered.”\textsuperscript{19} Internationally, states have resorted to economic sanctions or asset freezes as forms of reprisals.\textsuperscript{20}

In multilateral settings, retorsion and reciprocal action remedies are usually weak forms of sanctions. Given that retorsions are legal in all settings, their punitive effects are often insignificant. Reciprocal actions are usually ineffective when treaty compliance advances some common good. For environmental treaties, reciprocal noncompliance exacerbates the initial treaty breach by leading to more environmental harm. For human rights obligations, reciprocal violations are not only impermissible, but also unthinkable. Reprisals, by contrast, can have greater coercive effect. As a practical matter, however, they are available and can be used effectively only by the powerful because of the potential for retaliation.

2. Membership Sanctions

Membership sanctions involve the suspension of membership privileges in response to noncompliance, for example, the right to vote and to

\textsuperscript{16} See, e.g., \textsc{Restatement (Third) of the Foreign Relations Law of the United States} \textsection 905 cmt. a (1987).


\textsuperscript{18} \textsc{Restatement (Third) of the Foreign Relations Law of the United States} \textsection 905(1) (1987).

\textsuperscript{19} \textit{Id.; see also} \textsc{Case Concerning the Gabčíkovo-Nagymaros Project (Hung. v. Slovak.)}, 1997 I.C.J. 7, 52–57 (Sept. 25).

\textsuperscript{20} See \textsc{Restatement (Third) of the Foreign Relations Law of the United States} \textsection 905 cmt. b (1987).
participate in governance, or even membership status itself. When membership comes with valuable benefits, such sanctions can be a credible deterrent. For example, expulsion from the World Trade Organization would lead to the loss of valuable trade privileges and other preferential economic treatment. For many multilateral treaties, however, membership termination is an ineffective sanction. Such treaties call on states to take on affirmative and sometimes onerous obligations, ranging from reducing pollution to protecting human rights. Expulsion releases the target country from the treaty’s burdens and harms the treaty system further by exacerbating the initial breach.

3. Treaty-Based Mechanisms: Bilateral and Collective Sanctions

Treaty-based mechanisms include both bilateral and collective sanctioning mechanisms. As with countermeasures, the coerciveness of treaty-based mechanisms varies greatly. Bilateral enforcement mechanisms consist largely of state-to-state dispute settlement mechanisms. The best known of such processes, that of the GATT/WTO, allows for the imposition of trade sanctions upon a finding of noncompliance. Sanctions must be formally approved before they can be imposed. Most older environmental treaties lack dispute settlement provisions, but in contemporary treaty-making practice, bilateral dispute settlement provisions are widespread. Still, they usually lack explicit authority for

22. Voluntary withdrawal can be a converse sanction if the institution is heavily dependent on the support of one or a few individual states. See generally CHAYES & CHAYES, supra note 2, at 29–108.
23. For a discussion of supranational adjudication, which resembles bilateral mechanisms because it utilizes an arbitral/judicial format, see Laurence R. Helfer & Anne-Marie Slaughter, Toward a Theory of Effective Supranational Adjudication, 107 YALE L.J. 273 (1997). See also Part IV.A.2 infra.
25. The mechanism has been actively used for over 300 trade cases since its re-inception in 1995. See World Trade Organization, Dispute Settlement—Chronological List of Disputes Cases, http://www.wto.org/english/tratop_e/dispu_e/dispu_status_e.htm.
imposing binding consequences. 27 Dispute resolution relies instead on mediation, conciliation, and nonbinding arbitration. 28

Anecdotal evidence suggests that the bilateral mechanisms of many treaties, especially in multilateral environmental agreements, have generally remained underutilized. 29 For example, within the thirty-year history of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 30 a number of significant violations of CITES norms have occurred, 31 but no party has pursued dispute resolution through formal adjudicative processes as provided under Article 18(b) of the Convention. 32

Multilateral sanctioning mechanisms appear even more rarely than bilateral mechanisms. The United Nations Security Council is the most prominent multilateral mechanism and has the greatest coercive sanctioning powers. 33 The number of Security Council interventions has remained small because of the veto power of each of the five permanent members. 34 From its inception to 1990, the Security Council authorized military force only once (the Korean War) and economic sanctions twice (against Rhodesia in 1966 and South Africa in 1977). 35 Since 1990, however, the Council has invoked its Chapter VII powers more frequently,

---


28. Compliance-inducing responses remain available through the use of countermeasures, membership sanctions, and reprisals.

29. David Victor asserts that dispute settlement provisions in multilateral environmental agreements have never been formally invoked. See VICTOR supra note 27, at 64.


32. Violations have always been settled either informally, under article 18(a), or through actions and resolutions by the Conference of the Parties, the governing body of CITES. See WILLEM WINSTEKERS, THE EVOLUTION OF CITES: A REFERENCE TO THE CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA 375 (1998), available at http://www.cites.org/eng/resources/publications.shtml.


34. U.N. Charter, art. 27.

35. See HENRY J. STEINER & PHILIP ALSTON, INTERNATIONAL HUMAN RIGHTS IN CONTEXT: LAW, POLITICS, MORALS 651, 662 (2d ed. 2000).
authorizing economic sanctions and military force more than a dozen times.36

* * * *

Even if some of the difficulties of enforcement are attributable to the weak and ineffectual nature of many sanctions options, the most important problem of enforcement lies elsewhere. Anarchy does not mean that international law recognizes no power to sanction or that such sanctions are uniformly weak; existing options can have strong coercive effects, but their utilization in response to noncompliance is lackluster. Instead, available "sanctions [are] precarious in their operation"37 because no transnational authority coordinates and directs them.38

B. Alternatives to Institutional Deterrent Sanctions

The persistence of problems with the effectiveness of sanctions has led to the pursuit of alternative approaches. The three of greatest prominence are unilateral measures, compliance management, and transformational processes.39 Each response correlates with a distinct view of why states comply with international law. Because the theoretical foundations of some of these views have been well articulated in the international relations field, I make reference to that literature here.

1. Unilateral Sanctions

Unilateral sanctions are primarily self-help tools. Their appeal derives from the ability to deploy measures with strong coercive effects, such as brute military force or trade sanctions.40 According to realist theories of international relations,41 such approaches are necessary because states comply with international legal obligations only when their

39. The theoretical overviews given here are intended to be sketches only. For another overview, see Kenneth W. Abbott, International Relations Theory, International Law, and the Regime Governing Atrocities in Internal Conflicts, 93 AM. J. INT'L L. 361 (1999).
40. They are authorized by customary international law if they meet the criteria for permissible countermeasures.
41. See, e.g., MORGENTHAU, supra note 12; see also NICOLA MACCHIAVELLI, THE PRINCE (Edward Dacres trans., Charles Scribner's Sons, 1953) (1513).
interests happen to coincide with legal norms or because of coercion by a superior power.\footnote{See, e.g., Jack L. Goldsmith & Eric Posner, A Theory of Customary International Law, 66 U. Chi. L. Rev. 1113 (1999).}

As prime evidence of the efficacy of unilateral approaches, supporters usually point to the apparent success of the application of unilateral sanctions, especially trade sanctions, by the United States.\footnote{See, e.g., Alan O. Sykes, Constructive Unilateral Threats in International Commercial Relations: The Limited Case for Section 301, 23 L. & Pol'y Int'l Bus. 263 (1992).} Yet, such claims have not gone unchallenged;\footnote{See, e.g., Daniel Drezner, Bargaining, Enforcement and Multilateral Sanctions, 54 Int'l Org. 73, 98 (2000) (“[Multilateral sanctions that have the support of an international organization are significantly more effective than unilateral efforts.”).} the case of international whaling is instructive. In 1986, the International Whaling Commission (IWC) instituted the current moratorium on commercial whaling.\footnote{See David Caron, The International Whaling Commission and the North Atlantic Marine Mammal Commission: the Institutional Risks of Coercion in Consensual Structures, 89 Am. J. Int’l L. 154, 156 (1995).} Individual states have primarily implemented the moratorium, as the IWC has no independent enforcement power. The United States has deployed unilateral trade sanctions authorized under the Pelly Amendment\footnote{Pub. L. No. 92-219, 85 Stat. 786 (1971) (codified at 22 U.S.C. 1978 (2000)) (amending the Fishermen’s Protective Act).} against states that have ignored the moratorium. Steve Charnovitz has characterized such activities as “reasonably effective” in curtailing whaling,\footnote{See, e.g., Steve Charnovitz, Environmental Trade Sanctions and the GATT: An Analysis of the Pelly Amendment on Foreign Environmental Practice, 9 Am. U. Int’l L. Rev. 751, 806 (1994).} but others have vigorously disputed that assertion.\footnote{Dean Wilkinson, The Use of Domestic Measures to Enforce International Whaling Agreements, 17 Denv. J. Int’l L. & Pol’y 271, 281–91 (1989) (detailing the history and success of the U.S. use of trade sanctions with regard to whaling); cf. Chayes & Chayes, supra note 2, at 94–96; Gregory Rose and George Paleokrasssis, Compliance with International Environmental Obligations: A Case Study of the International Whaling Commission, in Improving Compliance with International Environmental Law, supra note 2, at 169–70.}

Dean Wilkinson has suggested that the politics of imposing trade sanctions, especially when the targets are allies of the United States, have significantly undermined the systematic and effective use of trade sanctions.\footnote{Wilkinson, supra note 48, at 281–91.} In fact, the ineffectiveness of sanctions under the Pelly Amendment is most obvious with respect to the whaling activities of Norway and Japan. To this day, both continue to engage in commercial whaling activities, with Japan euphemistically calling it scientific research whaling.\footnote{See Andrew C. Revkin, Japan Says It Will Double Its Annual Whale Harvest in Pacific, N.Y. Times, Feb. 28, 2002, at A14; Walter Gibbs, World Briefing Europe: Norway: Whalers Allowed a Bigger Catch, N.Y. Times, Feb. 16, 2002, at A10.}
Unilateral sanctions pose two additional problems. First, efforts to initiate unilateral sanctions may entail significant costs. The price of trade sanctions is the loss of economic opportunities. Military interventions require financial expenditures and may lead to the loss of lives. Goodwill and friendly relations are often another casualty of such a conflict. Unilateral sanctions can also trigger retaliation by the target state against the enforcer, potentially leading to "a long echo of alternating retaliations" and other adverse collateral consequences. Since such costs can be enormous, unilateral sanctions are available as a practical matter only to the most powerful states.

Second, unilateral sanctions may be perceived as illegitimate. No authoritative or neutral determination of the illegality of the initial breach or the fairness of the response is available; one state's unilateral retaliatory action may, to the targeted country, look like unlawful aggression or a general breach of international law. Moreover, since only the strong can engage in unilateral forms of coercion, such responses are subject to the "vicissitudes of the distribution of power between the violator of the law and the victim of the violation."

2. Compliance Management

Compliance management, a term coined in the writings of the Chayes, describes the proactive engagement of states and international institutions in ensuring compliance with treaty obligations. Compliance management calls for state compliance behavior to be shaped by continuous oversight, official prodding, and the provision of institutional assistance and positive incentives for those at risk of breach. It deemphasizes deterrence and arguably finds punitive sanctions unhelpful.

Compliance management is an outgrowth of the institutionalist branch of international relations theory, frequently referred to as regime theory. Institutionalists agree with realists that states are rational actors driven by self-interest. However, institutionalists take the ability of

53. See generally CHAYES & CHAYES, supra note 2, at 88–111.
54. MORGENTHAU, supra note 12, at 312. See also THUCYDIDES, HISTORY OF THE PELOPONNESIAN WAR 402 (Rex Warner trans., Penguin Books 1972) (n.d.) ("[T]he strong do what they have the power to do and the weak accept what they have to accept.").
55. CHAYES & CHAYES, supra note 2, at 22.
56. See id. ("[C]oercive enforcement is as misguided as it is costly.").
international institutions to shape and influence state behavior much more seriously.\textsuperscript{58}

The Chayes' concept of managerialism emphasizes the power of legal norms. It stresses that, in addition to material incentives and efficiency considerations,\textsuperscript{59} compliance with treaty norms occurs in large part because "people—whether as a result of socialization or otherwise—accept that they are obligated to obey the law."\textsuperscript{60} To promote compliance, then, managerialism seeks not only to adjust the incentives for compliance—for instance, by providing economic or technical aid that can make it easier to fulfill treaty obligations—but also to engage a sense of obligation to obey international legal norms. Persuasive discourse on treaty obligations and potential breaches, coupled with social and diplomatic pressure to remedy such breaches, can assist in achieving compliance under the managerialist model.\textsuperscript{61}

A number of empirical studies have found that compliance management contributes significantly to treaty effectiveness.\textsuperscript{62} In fact, the Montreal Protocol on Ozone-Depleting Substances, which embodies much of the managerial model, is considered one of the most successful multilateral environmental treaties to date.\textsuperscript{63} It is widely credited with

\begin{itemize}
\item \textsuperscript{58} See, e.g., \textit{Robert O. Keohane, International Institutions and State Power: Essays in International Relations Theory} 2 (1989). \textit{See also Cooperation under Anarchy} (Kenneth Oye ed. 1986); Abbott, \textit{supra} note 5.
\item \textsuperscript{59} Compliance may be efficient because decisions "are not free goods[, and g]overnmental resources for policy analysis and decision making are costly and in short supply." CHAYES \& CHAYES, \textit{supra} note 2, at 4. Compliance may also be in the interest of a state because ratification and acceptance of treaty obligations presumably show that treaty membership benefits the parties. \textit{Id.} at 4–7.
\item \textsuperscript{60} \textit{Id.} at 8.
\item \textsuperscript{61} The Chayes summarize their managerialist prescriptions as 1) ensuring transparency, 2) providing for dispute settlement, 3) capacity building, and 4) promoting the use of persuasion. \textit{Id.} at 22–26. The detriment can be as amorphous as loss of trust regarding compliance with other agreements, loss of status and reputation, shunning, and public shaming; or it can be as concrete as the loss of unrelated benefits, such as international development aid or technical cooperation. For the influence of nonlegal sanctions on conduct, see ROBERT ELICKSON, \textit{Order Without Law: How Neighbors Settle Disputes} (1991); David Charny, \textit{Nonlegal Sanctions in Commercial Relationships}, \textit{104 Harv. L. Rev.} 373, 392–94 (1990).
\item \textsuperscript{62} \textit{See, e.g., Institutions for the Earth, supra} note 2; \textit{Engaging Countries, supra} note 2; \textit{The Effectiveness of International Environmental Regimes, supra} note 2; Jonas Tallberg, \textit{Paths to Compliance: Enforcement, Management, and the European Union}, 56 \textit{Int'l Org.} 609 (2002).
dramatically reducing the production and consumption of chemicals that destroy the stratospheric ozone layer. 64

Still, others have sharply criticized the managerial model. 65 George Downs has argued that high levels of compliance attributed to managerial mechanisms are primarily due to preexisting high levels of cooperation among the treaty parties. 66 Compliance thus is not the result of managerial efforts, but rather an independent propensity of the parties to comply. Essentially, states are only doing what they would have done anyway.

The compliance management approach raises two further concerns in rejecting punitive sanctions. 67 First, noncompliance often involves no significant adverse consequences, instead triggering positive outcomes for the violator. Since compliance with most environmental agreements requires expending resources and foregoing economic opportunities, a rationally self-interested actor ordinarily would not be expected to comply other than when convenient. In fact, when stakes are high, as with national security, significant economic issues, or other vital national interests, it seems unlikely that the weak coercive forces of public shame, damaged reputation, or a general sense of moral duty to obey international law would trigger a response. 68 Is it reasonable, then, to expect much more than the appearance of a desire to comply?

Second, eschewing punitive sanctions raises questions about the credibility of the treaty obligations and the parties' commitment to them. The risk is that failure to sanction can be interpreted as indifference to noncompliance. If behavior and responses toward norm violators are largely indistinguishable from behavior toward norm adherents, do the treaty's norms and obligations really mean what they say? Are binding obligations no different from hortatory and aspirational commitments?

A closer examination of the Montreal Protocol's treatment of Russian noncompliance illustrates some of these concerns. 69 The

64. See, e.g., Benedick, supra note 63.
Noncompliance Procedure has been the primary tool for monitoring obligations for phasing out ozone-depleting substances (ODS). It is based on the premise that repeated interactions and iterative discourse can engage the violator in a cooperative enterprise to end noncompliance.

The Noncompliance Procedure provides that the Protocol's Implementation Committee (IC) will investigate allegations of noncompliance and make recommendations to the Protocol's member states. The Protocol supplies a list of potential remedies, including positive assistance to the violator, cautionary messages, and suspension of specific membership rights and privileges. The IC's usual response has been to recommend economic aid, technical assistance, or other helpful measures to bring the violator back into compliance. It has never recommended formal deterrent sanctions. In addition, the IC usually monitors the violator's compliance progress through periodic reporting requirements and meetings.

In 1995, the Russian Federation notified the Montreal Protocol parties that, as of January 1, 1996, it would be in noncompliance with its production phase-out obligations. In response, the parties recommended international assistance to address this problem and "imposed" additional information reporting requirements. In 1997, the IC found that Russia not only remained in noncompliance but had also engaged in prohibited trade of ODS. Noncompliance continued through 1998. Although the Protocol parties threatened more coercive sanctions, they also decided that Russia "should continue to be treated in the same man-
ner as a Party in good standing. Russia did come into compliance at the end of 2000, when it finally closed all CFC production facilities.

The entire process took more than five years from Russia's initial announcement. During that time, the parties used monitoring activities, financial assistance, prodding, and numerous meetings to lobby Russia, but they never imposed sanctions. If the five-year delay does not seem excessive, consider that Russia originally had asked for a five-year grace period. Worse yet, in 2000, Russia actually increased production in order to stockpile ODS in anticipation of the expected production phase-out. Since the Montreal Protocol's design does not limit the actual release of ODS into the atmosphere, but rather limits the production of ODS, Russia's increased production and stockpiling efforts had the effect of extending the delay of its phase-out obligation. In the end, Russia ignored a series of stern admonishments from the IC and returned to compliance on a schedule that it had set for itself.

3. Transformation of Identities, Interests, and Norms

A third alternative to deterrent sanctions is to use transformational efforts to encourage compliance. Rather than influencing state conduct through external means, transformational efforts induce compliance through internal changes—by transforming the international actors themselves. Compliance with treaty norms occurs because one believes

81. George W. Downs, Enforcement and the Evolution of Cooperation, 19 Mich. J. Int'l L. 319, 336 (1997) ("The preferences and even underlying values of States are changed as they are, in effect, socialized by the regime to the potential benefits of an increasingly ambitious regulatory agenda.").
that one should do so rather than because one is forced to do so.  

Like managerialism, transformational approaches reject the notion that only considerations of self-interest, material advantage, and security and power affect behavior. However, transformational approaches assert more actively that values, ideas, and identities influence state behavior.  

They seek to harness such nonutilitarian influences much more broadly than solely through the duty to obey the law.

As an illustration of such influences, consider five possible motivations for an individual's decision to act in an environmentally conscientious manner. The individual can engage in recycling because a) she is required to do so by a municipal ordinance that punishes violations with a fine, which she wants to avoid; b) she seeks social approval for her environmentally conscientious conduct and hopes to avoid social disapproval for throwing recyclables into the trash; c) even though she finds it inconvenient and time consuming to recycle, she values the environment and believes that failing to recycle would be "wrong"; d) her parents taught her the (unprovable) idea that she should recycle because otherwise nobody else will recycle; e) she identifies herself as a fervent environmentalist who is committed to living in an environmentally sustainable fashion. The recycling behavior illustrated in examples a) and b) is most often characterized as the result of formal and informal incentives. It would best correspond to realist and managerialist approaches to compliance. By contrast, in examples c), d), and e), none of the motivations for action can fairly be characterized as arising out of ordinary, self-interested, utilitarian considerations.

According to constructivist theories of international relations, Harold Koh's transnational legal process theory, and liberal theories of

84. I have tried to set out how motivations for recycling can be based in a) & b) self-interest (in avoiding formal or informal punishment and seeking recognition), c) norms, d) ideas/beliefs, and e) identity. They are not entirely analytically distinct. For example, values are often constitutive of identity. My point here is to illustrate the various bases that constructivists have relied upon to justify their contentions.
86. See Koh, supra note 82. Koh's theory is the application of the legal process school to international law. See also Henry M. Hart & Albert M. Sacks, The Legal Process: Basic Problems in the Making and Application of Law (1994).
compliance with international law, transformation is possible because of the socially constructed nature of national identities and interests. Instead of adjusting incentives to achieve compliance as institutionalist models would, transformational approaches focus on changing the values, ideas, identities, and interests of the state actors themselves. If states are transformed so that they comply on their own accord, enforcement becomes unnecessary.

Koh's theory of transnational legal process asserts that international legal norms, values, and beliefs can be internalized through repeated interaction, sustained discourse, and efforts to persuade governmental and nongovernmental actors. In essence, Koh asserts that states can be "socialized" into accepting the values and norms of the international legal system just as children are socialized into accepting a society's values and norms through educational and other social processes. Specific channels of action include the work of transnational activists and nongovernmental organizations, diplomatic interactions and discourse, pronouncements of individuals or entities with authority (such as the International Court of Justice), and the work of epistemic communities.

Epistemic communities have been especially influential with respect to international environmental issues. They are "network[s] of professionals [such as scientists,] with recognized expertise[,] competence[,] and an authoritative claim to policy-relevant knowledge within [the] issue-area." Because understanding and addressing environmental problems such as stratospheric ozone depletion and global climate change requires technical and scientific expertise, epistemic communities have had a dominant role in shaping the perception of reality, framing issues, and identifying national environmental interests. For example, the advocacy work of atmospheric scientists and environmentalists in large part drove the adoption of the ozone treaties and the phase-out of CFCs.

---

88. Koh, supra note 82, at 203–05.
92. See, e.g., Peter M. Haas, Banning Chlorofluorocarbons: Epistemic Community Efforts to Protect Stratospheric Ozone, 46 INT'L ORG. 187 (1992); see also BENEDICK, supra note 63. Issue 1 of volume 46 of International Organization (1992) is entirely devoted to
The attractiveness of constructivist or transformational approaches lies in their emphasis on cooperative and non-confrontational methods. Positive measures, such as education, persuasion, and technical assistance, create pressure to accept responsibility for obligations. By contrast, traditional deterrent sanctions can be unnecessary and counter-productive because they evoke resentment, hostility, and resistance. Transformational approaches reflect the adage that one is more likely to catch flies with honey than with vinegar.

The effectiveness of transformational approaches is the most difficult of the three alternatives to assess. Norm internalization and transformation usually do not result in easily discernable changes or quantifiable progress. Instead, such approaches seek to induce broad attitudinal and behavioral change. Isolated instances of treaty violations do not alone disprove the potential for transformational change.

Criticism of transformation is similar to that directed at managerialism. Avoidance of deterrent sanctions raises the question of whether compliance is likely to occur when stakes are high. Furthermore, the violator and other states may perceive noncoercive responses as weak commitment to treaty norms. Transformational approaches also have been blamed for contributing to "shallow" treaty obligations—a persistent complaint about environmental treaties. While such agreements take on the challenges of serious global commons problems with high ideals and grand aspirational language, the substantive commitments often include only weak implementation obligations. In pursuing cooperation, they arguably cater to the least common denominator, and the resulting treaty may not demand many substantive changes in behavior, significant commitments of resources, or other inconvenient or substantial sacrifices.

For example, the 1992 UN Framework Convention on Climate Change embodied the aspirations of the industrialized states to cut
greenhouse gas emissions to 1990 levels by the year 2000, but the parties were unable to achieve a consensus on binding emissions reduction targets. Instead, they adopted a "pledge and review" process that created nonbinding commitments. The process failed to achieve the desired results and led to the adoption of the Kyoto Protocol targets.

***

Alternative models to institutional deterrent sanctions have been invaluable for the theory and practice of international environmental law. Yet, they also have significant flaws. None of them can achieve the full range of effects and outcomes that are ordinarily attributed to an effective mechanism of law enforcement. None of them individually appears to be able to serve as an adequate replacement for traditional sanctions-based enforcement mechanisms. The next section provides an explanation by examining the structural impediments to treaty enforcement. A closer look at the purposes of enforcement indicates that institutional deterrent sanctions are a public good, and establishing them presents corresponding difficulties.

II. TREATY ENFORCEMENT AS A PUBLIC GOOD

Environmentalists concerned with protecting the environmental commons have long been familiar with the difficulties of generating and conserving public goods. This section approaches treaty enforcement itself as one type of open-access public good.

A. The Nature of Public Goods

A public good is commonly described as any good that is nonexclusive in benefit or use. Thus, "those who do not purchase or pay for any

---

100. Strictly speaking, public goods "are defined [by] jointness of supply and impossibility of exclusion." RUSSELL HARDIN, COLLECTIVE ACTION 17 (1994). "Jointness of supply" means that "one person's consumption . . . does not reduce the amount available to anyone else." Id. "Impossibility of exclusion" means just that—namely, that "it is impossible to prevent relevant people from consuming it." Id. While enforcement satisfies both criteria of public goods, for many environmental goods—including those discussed by Mancur Olson—
of the public ... good cannot be excluded or kept from sharing in the consumption of the good." The most common examples are the atmosphere, national defense, or even the system of law and order more generally. Enforcement of legal norms is a public good because it generates widespread benefits, including safety from violence or anarchy and affirmative support of the pursuit of individual happiness.

In his seminal work on collective action, Mancur Olson pointed out that, even though public goods benefit everyone, divergence between individual and common interests often undermines efforts to maintain such goods. Since the benefits of public goods are nonexcludable once created, why help generate them? In fact, since public goods frequently require money, time, or other resources, little incentive exists to help create or maintain them. "Shirking" and other strategic behavior are rational and inevitable responses. In national legal systems, the state creates much of the enforcement good through public funding of the judiciary and law enforcement authorities. Unfortunately, the international legal system lacks general subsidies or coordination of enforcement activities.

B. The Public Good Characteristics of International Treaty Enforcement

Enforcement through institutional deterrent sanctions is a public good in two distinct ways. First, institutional deterrent sanctions constitute an instrumental means for promoting compliance. Second, they express the parties' commitment to the norms embodied in the treaty and the rule of law.

1. Instrumentally Assuring Treaty Compliance: Treaty Effectiveness and Preserving the Benefit of the Bargain

Institutional deterrent sanctions serve as an instrumental means for promoting compliance. They contribute to treaty effectiveness by preventing parties from shirking their commitments and by ensuring that

only the characteristic of impossibility of exclusion, as a practical matter, is relevant. See Mancur Olson, The Logic of Collective Action 14 n.21 (2d ed. 1971).

101. Olson, supra note 100, at 15.

102. The best known narrative description of such collective action difficulties is the "prisoner's dilemma." See, e.g., E. Donald Elliott et al., Toward a Theory of Statutory Evolution: The Federalization of Environmental Law, 1 J.L. Econ. & Org. 313, 324 (1985); Axelrod, supra note 51, at 7-8; Baird et al., Game Theory and the Law 33-34 (1994); William H. Rodgers, Jr., Environmental Law 39-42 (2d ed. 1994).

103. According to Olson, "unless the number of individuals is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interest." Olson, supra note 100, at 2.
parties receive the benefit of their bargain. Greater treaty effectiveness, in turn, makes the benefits of international agreements reciprocal in practice rather than in theory alone, allowing states to make deeper commitments.104

Treaty effectiveness and preservation of the bargain, however, serve all parties, regardless of their contribution to enforcement efforts. In environmental treaties that protect open-access commons, the benefits also extend to nonparties. For example, strict adherence to the ODS phase-out schedule under the Montreal Protocol contributes to the protection of the stratospheric ozone layer. Since the ozone layer is a part of the non-excludable atmospheric commons, all inhabitants of Earth benefit from compliance with the Protocol, including those in states outside the Protocol system.105


Compliance is not the sole criterion for assessing the usefulness of traditional enforcement mechanisms.106 Even in domestic legal systems, the use of deterrent sanctions does not achieve perfect compliance. A complete understanding of treaty enforcement must also consider its expressive function and its role in maintaining the normative aspects of the law.

As constructivist approaches have suggested, treaties are not just utilitarian instruments for accomplishing some ulterior goal, a common task, or the exchange of benefits. Their purpose may also be noninstrumental in character. Treaties can construct or publicly acknowledge shared values, interests, or identities. States often comply with treaty norms guaranteeing human rights107—and increasingly those embodied in environmental treaties—simply for the sake of upholding those norms. For example, many states require the humane treatment of endangered species while they are in international transit108 because it is morally and ethically appropriate. Like Kant’s categorical imperatives, obedience to such norms is inherently proper regardless of the utilitarian effects of such norms. Adherence to these norms is not merely a tool for achieving

104. See Baird et al., supra note 102, at 56–57.
105. See generally Benedick, supra note 63.
106. See, e.g., Reisman, supra note 33, at 648–49. But see Wild, supra note 1, at 8.
107. See, e.g., Steiner & Alston, supra note 35, at 104–05.
108. See CITES, supra note 30, art. III(2)(c) (requiring the humane in-transit treatment of endangered species).
other objectives; it also affirms the significance of morality and ethics in shaping human conduct. 109

Similarly, the framework conventions on climate change and ozone depletion identify a common global interest in avoiding the adverse ecological and public health impacts of anthropogenic modification of the atmospheric commons and the stratospheric ozone layer. The UN Charter can be seen as an affirmation of the parties’ identities as peaceful members of the community of nations, 110 with all the attendant expectations for future behavior and actions. As an expression of shared interests and identities, such treaty norms delineate a community of which the treaty members are a part.

If a treaty can be seen as the expression of a consensus on norms, interests, and identity, then noncompliance can be seen as damaging to that consensus.111 To paraphrase Robert Cover, the violator’s noncompliance actions put forth an alternative normative universe.112 Enforcement actions are necessary to affirm the existence and primacy of a common normative community to which all treaty parties belong, including the violator. Unlike a morally neutral disincentive, such as a tax, sanctions signal disapproval and denounce the nonconforming act.113 They express the significance of the institution’s concern with the norm violation114—that the other parties actually “care” about the treaty norms and their breach. As Elizabeth Anderson and Richard Pildes have stated: “There

---


111. For an example of the perils of a lack of norm consensus, see Caron, supra note 45. Cf. Laurence J. Helfer, Overlegalizing Human Rights: International Relations Theory and the Commonwealth Caribbean Backlash Against Human Rights Regimes, 102 COLUM. L. REV. 1832 (2002) (citing parties’ disagreement about substantive content and obligations of human rights treaties leading some to denounce the treaties).


114. See DOXEY, supra note 52, at 57–65 (discussing the symbolic function of sanctions); see also Michael W. Macy, Backward-Looking Social Control, 58 AM. SOC. REV. 819, 820 (1993).
are some things we can express only with deeds, because words alone cannot adequately convey our attitudes. Enforcement affirms that commitment and protects the continued existence of the community for the benefit of all. Protecting and preserving normative communities can have long-term transformational benefits. If norms, interests, and identities of community members are preserved or more closely aligned with overall treaty goals and purposes, voluntary compliance will improve, and punitive corrective actions may be less necessary.

3. Strengthening Conformity with the Rule of Law

In addition to strengthening particular substantive norms, enforcement also promotes a more general norm: the rule of law. Because of its significance as a norm that is not only present in all treaties, but also independently in international law more generally, the rule of law warrants separate treatment.

Governance under law “is vital for the security and well-being of the complex international community of the present day [in that it ensures] the ordered progress of relations between its members.” The rule of law requires that those governed by law act according to what is legally right or wrong rather than what is convenient or within their self-interest. It protects against anarchy, assures predictability and knowledge of the application of legal rules, and guarantees impartial justice. Adherence to the rule of law allows for the existence of an international community of nations, as opposed to a true Hobbesian state of anarchy and constant war. Institutional deterrent sanctions are public goods because they protect against lawlessness and anarchy.

The power of the rule of law is most apparent in the influence of the International Court of Justice and the United Nations system. Although the ICJ lacks readily available enforcement mechanisms, respect for law is arguably an important source of the Court’s authority and persuasive influence. Likewise, Jose Alvarez has noted that “[m]uch of the

116. See Cover, supra note 112, at 49.
117. See, e.g., Marbury v. Madison, 5 U.S. (1 Cranch) 137, 163 (1803).
effectiveness of the UN collective security system is due . . . to the idea that when international subjects act, they do so under the rule of law." 120

Institutional deterrent sanctions strengthen the rule of law in two ways: a) they ensure that the response to a treaty violation is impartial and governed by law, and thus that it is legitimate and fair; and b) they reinforce the best-known manifestation of the rule of law in all treaties—\textit{pacta sunt servanda}, the duty to comply with treaty obligations. 121

\textbf{a. Ensuring the Legitimacy of Sanctions Responses}

Institutionalizing enforcement ensures that sanctions are legitimate. Without institutional control and approval, the appropriate and inappropriate use of coercive sanctions would often be indistinguishable. Similarly, institutionalized enforcement provides a nonarbitrary and impartial method for resolving questions about the appropriateness and severity of sanctions, reducing the threat of legally unjustified and disproportionate uses of deterrent sanctions. All treaty parties benefit from assurances that they will not arbitrarily become a target of sanctions.

Finally, institutionalized enforcement can reduce the cost of sanctions and increase their effectiveness: 122 legitimate sanctions encounter less resistance and retaliation. In fact, the larger the number of states participating in an enforcement action, the greater the cost of resentment and retaliation for the target state. Conversely, if sanctions are severely illegitimate, resistance may be high, the overall effectiveness of the treaty system may be undermined, and all treaty parties may be harmed. 123

\textbf{b. Pacta Sunt Servanda and the Obligation to Obey the Law}

The rule of law also requires that state conduct conform to the duty to obey legal obligations—the \textit{"super-norm"} of \textit{pacta sunt servanda}. 124 \textit{Pacta sunt servanda} is not like other treaty norms. 125 Its existence is nec-

---


121. \textit{"[A]greements . . . must be observed."} \textit{Black's Law Dictionary} 999 (5th ed. 1979); \textit{see also} VCLT, \textit{supra} note 17, art. 26.


124. \textit{See} Helfer & Slaughter, \textit{supra} note 23, at 273, 332 n.259 (discussing \textit{pacta sunt servanda} as a "meta-norm"); Hart, \textit{supra} note 109, at 228 (discussing \textit{pacta sunt servanda} as a "basic norm" of international law).

necessary to all treaties, and all treaty commitments presuppose it.\textsuperscript{126} It embodies the nature of law as a set of rules that must be obeyed and not simply consulted for guidance.

Enforcement of \textit{pacta sunt servanda} has an important expressive function. It signals the expectation that legal norms are to be obeyed simply because they are law, even if doing so is inconvenient or contrary to immediate material self-interest. Thus, compliance is not just a voluntary act of moral excellence, but rather the fulfillment of a basic duty.

Stricter enforcement has the long-term benefits of a greater degree of "international legalization" of \textit{pacta sunt servanda}\textsuperscript{127} and a higher level of voluntary compliance. In turn, there will be a reduced need for future enforcement actions, and correspondingly lower future enforcement costs.\textsuperscript{128} States might also be more willing to commit to deeper obligations in future international agreements. Parties would be able to address a broader set of global environmental or other issues in a more aggressive manner, having greater confidence that the mutually agreed-upon commitments would be kept. By contrast, lack of enforcement can demoralize other complying members, leading them to question the overall fairness of the treaty regime and thus undermining the parties' commitment to it.\textsuperscript{129}

III. THE PROBLEM OF GENERATING THE "ENFORCEMENT GOOD"

If treaty enforcement is conceived as a public good, the collective action and strategic behavior difficulties become readily apparent.\textsuperscript{130} But two other closely related problems are also significant: the second-order

\textsuperscript{128} A safer world with fewer conflicts should be the result. See, e.g., Samuel Huntington, \textit{American Ideals Versus American Institutions}, in \textit{AMERICAN FOREIGN POLICY} 241–42 (John Ikenberry ed., 1989) (arguing that promotion and enforcement of American values ultimately provides greater security for the United States).
collective action problem and the normative foundations of compliance. Each poses obstacles to the creation of the "enforcement good" and leads to less enforcement than ideally desirable.

A. Strategic Behavior in Treaty Enforcement

As a public good, treaty enforcement must overcome collective action difficulties in getting states to contribute to the cost of enforcement. 131 Loss of human life and financial costs in military interventions, damage to the sanctioning state's own economic well-being through economic sanctions, and the possibility of resentment and retaliation by the target state all contribute to the incentive to shirk participation. 132

When at least one party has a particularly large stake in ensuring compliance, the individual benefits of enforcement can outweigh the costs, and enforcement may still occur. 133 But that is not likely to be the case for most environmental agreements. 134 Harm to the environmental commons is spread out over many states. It may even be externalized to states that are not parties to environmental agreements and have no formal standing within the treaty itself. Many environmental problems such as ozone depletion and global climate change are the cumulative result of years, decades, and sometimes even centuries of pollution and environmental degradation. The marginal harm from any particular treaty breach may appear small compared to the overall problem, and if the agreement is designed to promote intangible or incommensurable values such as human rights or biological diversity, there may be no perceptible or quantifiable harm. The result in such cases is that member states devote fewer resources to encouraging compliance than might be desirable or economically efficient. 135 If enforcement costs are very high compared to the harms of noncompliance, as may frequently be the case with unilateral sanctions, no single state may find it worth its while to pursue sanctions. This may be true even if the treaty breach is substantial and serious, and enforcement could create an overall benefit to the treaty system and other parties.

131. See, e.g., Doxey, supra note 52, at 106-09. The problem does not usually arise in bilateral treaties since the cost of breach is concentrated on the other party.

132. See, e.g., id. at 27-31.

133. For example, within the WTO, tariffs that are applied in a nondiscriminatory fashion on all imports of a particular good usually still have discriminatory effects on particular countries. Countries that tend to specialize in particular export goods will have a special incentive to bring enforcement actions.

134. Bilateral treaties constitute a special case, since breaches by one party can localize the harm wholly on the other party. See Olson, supra note 100, at 43, 45.

135. See, e.g., Abram Chayes et al., Managing Compliance: A Comparative Perspective, in Engaging Countries, supra note 2, at 53. See discussion infra Part IV.C.
Ultimately, this noncompliance conundrum encounters limits. Iterative processes and long-term interactions alleviate free-rider difficulties. Lengthening the time horizon and the availability of repeated interactions create opportunities for parties to reward cooperators or sanction defectors, thus increasing the level of cooperation in enforcement actions.\textsuperscript{136} Social structures and norms can be influential as well.\textsuperscript{137}

However, the problem of strategic behavior remains significant. For example, although participation in United Nations peacekeeping activities may involve a surprisingly large number of states,\textsuperscript{138} such participation is far from consistent and universal. Moreover, the low utilization rate of bilateral and multilateral dispute settlement mechanisms, especially in environmental agreements, suggests strategic behavior remains a considerable problem.

B. The Second-Order Collective Action Problem: Carrots, Sticks, and the Distinction Between Ex Post and Ex Ante Approaches to Compliance

The nature of enforcement as a public good suggests that the structuring of enforcement incentives is an important issue in designing international environmental treaty regimes.\textsuperscript{139} That task, however, is complicated by the second-order nature of the collective action problem.\textsuperscript{140}

The distinction between deterrent sanctions and positive compliance incentives is illustrative. The most common metaphor for the difference between deterrent sanctions and positive incentives is the "carrot and

\textsuperscript{136} See, e.g., AXELROD, supra note 51; see also BAIRD ET AL., supra note 102, at 159–87. Martin also points to strong leadership and "bandwagoning" effects as means for overcoming free-rider problems. MARTIN, supra note 129, at 40–43. However, as with unilateral sanctions, that seems only likely to occur effectively with powerful countries such as the United States.

\textsuperscript{137} See generally ELLICKSON, supra note 61; ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990).


\textsuperscript{140} If the underlying environmental problem—the creation of the environmental public good—is seen as the primary collective action problem to be addressed, then enforcement is a secondary (or second order) collective action problem because it arises only as part of the solution. In other words, the solution to the primary collective action problem itself creates another collective action problem. See infra notes 144–145 and accompanying discussion.
stick" image. It is used to describe the key distinction between manage-
rial or transformational approaches—which rely primarily on positive
incentives to induce compliance—and institutional and unilateral sanc-
tions mechanisms—which rely primarily on negative disincentives such
as punitive sanctions.

But the carrot and stick metaphor is deceptive. Although it contrasts
cooporative and punitive approaches, it also suggests a fundamental
equivalence between the two. Since punitive sanctions are negative in-
centives, they are easily portrayed as the converse of positive incentive
mechanisms. In each case, the overall influence on the regulated entities
appears fundamentally equal to the other, simply employing a different
form of manipulation of incentives and disincentives to prompt particular
behavior. As critiques of compliance management and transformational
approaches have explained, however, they do not function in the same
way, and their effects are different. 141

More important to understanding the obstacles to generating deter-
rent sanctions is the fact that the metaphor masks two significant
qualitative differences. 142 First, institutional deterrent sanctions differ not
merely in their reliance on negative incentives, 143 but also in their tempo-
rnal relationship with the treaty breach. Cooperative models and positive
incentives are ex ante approaches that seek to prevent noncompliance
from occurring in the first place. By contrast, deterrent sanctions are ex
post approaches to norm compliance that are triggered after a treaty
breach has occurred or as it is about to occur. In other words, the prob-
lem of enforcement does not arise until after a party has decided that all
the institutional incentives, disincentives, and ex ante breach constraints
are insufficient to induce it to comply. Deterrent sanctions, by their na-
ture, do not come into play until all ex ante efforts at achieving
compliance have failed. 144

Second, the notion of equivalence between positive and negative in-
centives also obscures differences in the difficulty of generating such

141. See supra Parts I.B.2–3.
142. Although beyond the scope of the discussion here, Daniel Drezner has pointed to
the reputational effects that use of, and response to, positive and negative incentives have on
the effectiveness of those incentives. See Daniel Drezner, The Sanctions Paradox: Eco-
nomic State Craft and International Relations 1–6 (1999); see also Daniel Drezner,
The Trouble with Carrots: Transaction Costs, Conflict Expectations, and Economic Induce-
ments, in Power and the Purse: Economic State Craft, Independence, and National
Security 188 (Jean-Marc Blanchard et. al. eds., 2000).
143. See Karin Mickelson, Carrots, Sticks or Stepping Stones: Differing Perspectives on
Compliance with International Law, in Trilateral Perspectives on International Legal
Issues: From Theory to Practice 35, 36 (Thomas J. Schoenbaum et al. eds., 1998); Pamela
Oliver, Rewards and Punishments as Selective Incentives for Collective Action: Theoretical
144. The types of breaches that I am focusing on here are not inadvertent or accidental.
incentives. Unlike money, the quintessential positive incentive, most punitive sanctions cannot easily be "stored" or otherwise effected in advance of the need for them. Instead, they must be invoked after a treaty breach has occurred. For example, economic embargoes are the result of a refusal to trade goods; such actions cannot be taken in advance or independently of the punitive effect. At the same time, states have been loath to cede control over the tools that can produce the effects of deterrent sanctions. Making resources such as military forces available in sufficient numbers so as to constitute a serious deterrent would transfer sources of national power and security to the control of others. Similarly, giving regulatory control over commerce and banking activities to a treaty institution in advance of breach, so that it may impose punitive import tariffs or freeze assets in response to noncompliance, would seriously diminish a state's sovereign control and autonomy over activities within its own borders. Thus, providing treaty institutions with the fundamental tools for generating the effects of deterrent sanctions is normally much more difficult than creating positive incentives.

Producing institutional deterrent sanctions thus presents collective action problems that do not arise until after a breach has occurred. It therefore raises distinct second-order collective action problems that must be handled separately from the underlying problems the treaty addresses. In essence, these difficulties indicate that the need for ex post norm enforcement cannot be completely eliminated or supplanted by ex ante positive incentives.

C. The Normative Foundations of Compliance and Enforcement

A third difficulty in triggering enforcement responses to noncompliance can be attributed to the frailty of the normative foundations of
compliance and enforcement. Within international diplomatic practice and the self-interested and security-driven decision-making processes of states, instrumental views of treaties and enforcement predominate. The normative aspects of treaties, compliance, and enforcement are largely of secondary importance. Upholding treaty norms in such a situation encounters two particular obstacles: the proper valuation of the normative benefits of enforcement, and the associated erosion of the authority and autonomy of treaty norms.

1. The Dual Nature of Treaties and the Predominance of Instrumentalist Perspectives

Contemporary discourse on environmental enforcement and compliance has focused primarily on its instrumental functions—ensuring treaty effectiveness and preserving the benefit of the bargain. As previously noted, environmental treaties also advance normative goals, including promoting the values underlying an agreement and the rule of law in general. These competing views arise out of the dual nature of treaties as both contracts and legislation. Like contracts, treaties impose only obligations to the extent that the sovereigns have consented to them. Like legislation, they also restrict a state's freedom of action through the newly created legal norm, and hence they require ceding some amount of sovereignty to the treaty regime.

As contracts, treaties are designed to achieve the utilitarian purposes of the parties by "creating legal rights and obligations" between them. Similar to contracts between private individuals, treaties are voluntary and reciprocal commitments based on mutual consent. The rules governing treaty application and interpretation incorporate many principles relevant to the creation, interpretation, and conclusion of contracts. For example, concluding a treaty requires both the capacity and consent of

147. See, e.g., supra note 2. See also Draft Articles on State Responsibility, supra note 113, art. 49 cmt. 3.
149. Brierly, supra note 37, at 243 ("In most respects the general principles applicable to private contracts apply."). See generally VCLT, supra note 17. Of course, "analogies from the contract law of any particular country are to be used with caution." Restatement (Third) of the Foreign Relations Law of the United States, introductory note (1987). For example, requirements such as consideration do not apply to treaties, nor does a statute of frauds exist for treaties. Id.
the parties, and it may be invalidated for mistake, fraud, and coercion. The General Agreement on Tariffs and Trade is a well-known example of a contract-type treaty. Designed to promote free trade, the GATT's primary mission is the reduction of tariffs and trade barriers. The manner in which most of the tariff negotiation rounds occurred—by the exchange of various tariff concessions—illustrates the parties’ contractual understanding of the GATT. In each of the GATT trade rounds, the contracting parties sought to come to a mutually agreed-upon and carefully considered bargain in which each provided some tariff concessions and received others in return.

As legislative acts, treaties set out legal frameworks that elaborate commonly agreed-upon norms and create "general rules of conduct among a considerable number of States." They are international law. The institutions that they create advance some larger communal good or benefit, often championing ideals that do not directly benefit any particular party, but indivisibly further the welfare of all, including those who are not party to the treaty system.

The legislative conception is most strongly expressed in multilateral agreements open to all states. The international human rights law

---

150. See VCLT, supra note 17, arts. 7-8, 11-15; see also BRIERLY, supra note 37, at 243; OPPENHEIM, supra note 38, at 890. Cf. Restatement (Third) of the Foreign Relations Law of the United States § 313 cmt. g (1987) ("A permissible reservation is in effect a 'counter-offer'...').

151. See VCLT, supra note 17, arts. 48-49, 51-52.

152. General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, T.I.A.S. 1700, 55 U.N.T.S. 194. While the GATT has been superseded by the WTO, most of its substantive principles and provisions continue to exist largely unaltered in the WTO.


154. OPPENHEIM, supra note 38, at 878–79; ROSENNE, supra note 148, at 124. Brierly noted that "they do in fact perform the function which a legislature performs in a state, though they do so only imperfectly." BRIERLY, supra note 37, at 59–60.


system is one of the most prominent examples. Especially when prepared within the UN system, multilateral human rights instruments are designed to attract the widest participation possible and become universally applicable. Multilateral agreements dealing with global environmental issues likewise exhibit many characteristics of universality.

The contractual and legislative sides of treaties are not mutually exclusive; many treaties exhibit characteristics of both. Nevertheless, law-based perspectives of treaties—and international relations more generally—remain weak. Utilitarian conceptions and national self-interest concerns continue as the most powerful forces in international politics and the foreign policies of many countries.

2. The Problem of Valuing the Benefits of Enforcement

The contractual-utilitarian model of treaties and the remedies it affords may be appropriate for some treaties, such as international trade agreements. Unfortunately, this is likely to be the exception rather than the rule. Not all treaty functions, including the public expression and shaping of norms, values, and state identities, can readily fit into a contract model. This is especially true for multilateral agreements involving the environment and human rights. Ordinarily, contract remedies, such as compensation or reciprocal noncompliance, will be inadequate as an enforcement response or run counter to overall treaty objectives. For example, compensation remedies will ordinarily run into measurement difficulties. Even when environmental harms such as pollution are readily visible, appropriately quantifying them and showing causation has proven extremely problematic.

Consider quantifying and allocating responsibility for ozone depletion. Accurately valuing the environmental and public health injuries resulting from ozone depletion would only be part of the challenge. The task would also require determining the relative contributions to ozone depletion of current and past activities of other states, taking into ac-

---

158. Id. § 313.
count the stratosphere’s natural ability to regenerate itself over long periods of time. Superimposed on these difficulties would be disputes over what types of ecological harms and human diseases could be attributed to increased solar ultraviolet radiation as opposed to other influences unrelated to ozone depletion.

Traditional economic methodologies of measuring environmental harm have been controversial. Market-based valuation methodologies have been criticized for failing to account properly for the vital functions and benefits that ecosystems provide. For many environmental goods such as clean air, no applicable markets exist, but there can be no question that such goods are no less valuable and important to human life than goods available in the marketplace.

Even more difficult to assess for compensation purposes is the value of noneconomic and noninstrumental aspects of the environment. Aesthetic and existence values are the best-known and most widely accepted values, but the environment also encompasses noneconomic values assigned by advocates of animal rights, environmental ethics, or cultural values in the environment. Methodologies such as contingent valuation are helpful in this regard. But little consensus exists in the United States on the types of uses, values, and harms that should be included in such quantification efforts or the criteria for measuring them. Such valuation difficulties would be similarly, if not more, intractable internationally.

Quantitative valuation seems just as difficult or impossible for the diffuse and long-term benefits of strong and respected treaty norms, including the rule of law: higher levels of compliance, lower enforcement costs, and more order in the international system. The same is the case with the consequences of unchecked breaches: demoralization of compliant parties and the adverse precedential effect of inviting future breaches. Of course, compensation is not the only remedy for breach,
but any perspective driven primarily by considerations of national interest and security would rely in the first instance on a utilitarian analysis of enforcement—the methodology underlying the treaty-as-contract perspective. Given the difficulties of valuation, enforcement will occur at less than optimal levels.

3. The Authoritative Nature of Treaty Norms

The predominance of instrumental attitudes also neglects the authoritative and autonomous nature of treaty norms. First, as components of a system of public law, treaties give rise to norms that are legal and thus authoritative. They command obedience regardless of inconvenience or immediate self-interest, unless excused by other legal doctrines such as necessity, consent, and the operation of conflicting peremptory norms. As a source of compliance, legal norms operate independently from instrumental considerations. Second, as legal institutions, treaties possess identities and exist separately from the states parties to them. Treaty norms are thus autonomous of the interests of the parties, and norm compliance is an institutional interest that transcends the parties directly affected by a breach.

Instrumentalist approaches undermine this authoritative and autonomous character of treaty norms. For states that subscribe primarily


168. See, e.g., Draft Articles on State Responsibility, supra note 113, arts. 20–26; Case Concerning the Gabítko-Nagymaros Project (Hung. v. Slovak.), 1997 I.C.J. 7, 40–41 (Sept. 25); VCLT, supra note 17, art. 53.

169. That is not to say that social welfare considerations are not relevant. See, e.g., United States v. Caroll Towing, 159 F.2d 169 (2d Cir. 1947) (cost-benefit balancing in negligence analysis); see generally Richard Posner, Economic Analysis of Law (3d ed. 1986). However, law as a basis for compliance and enforcement is not coextensive with and necessarily dependent upon its social welfare costs and benefits. Legal norms compel obedience because conforming one’s behavior to the norm is the appropriate course of action.


172. See, e.g., Immanuel Kant, The Metaphysical Elements of Justice 100 (John Ladd trans., Bobbs-Merrill 1965) (1780) (suggesting an independent categorical imperative to punish breaches of law); Naomi Roht-Arriaza, Impunity and Human Rights in International Law and Practice 24–56 (1995) (discussing the independent duty to punish or enforce the law present in many religions and philosophical writings and the emergence of a legal duty to enforce the law against individual violators).
to a foreign policy based on rational self-interest and power politics, norms play no significant role in decision-making processes. Unless social welfare analysis can provide a persuasive reason for action in response to a breach of treaty norms, such states are unlikely to take enforcement measures. Instrumentalist perspectives also can subvert appropriate enforcement mechanisms when responses to breaches are deliberately manipulated. For example, a violator may bribe key parties, perhaps the most powerful states parties, in order to guarantee inaction in response to breaches. The result is not only failure to mobilize institutional support for sanctions, but also subversion of the normative and legal character of international law more generally.

The rule of law arguably has grown stronger in international relations in recent decades. One indication of this trend may be more instances in which enforcement actions appear “altruistic,” and thus independent of national self-interest. But such interventions remain rare, and they are unheard of for breaches of environmental agreements.

IV. GENERATING THE “ENFORCEMENT GOOD”

Given the structural complexities of triggering enforcement actions, how can enforcement responses to noncompliance be increased? At least three general approaches suggest themselves: A) changing the enforcement calculus, B) promoting entrepreneurial enforcement, and C) altering treaty design.

A. Changing the Enforcement Calculus

If collective inaction and strategic behavior are the result of individual self-interest misaligned with the communal good of enforcement, one solution is to alter costs and benefits to promote enforcement actions. This may be accomplished either by creating incentives for behavioral changes or changing the value of enforcement and compliance. The result is to modify the structure of the collective action problem and the likelihood of enforcement.

173. Likewise, if compliance occurs solely as a matter of immediate self-interest, it obviously will cease when self-interest and convenience no longer provide the motivation to comply.

1. Adjusting the Incentives to Engage in Enforcement

Enforcement activities can be stimulated by increasing the positive benefits that flow from a successful outcome, by reducing the cost of initiation or participation, or by raising the cost of inaction. The most direct method of increasing benefits is through financial incentives. For example, a common fund created through financial contributions from treaty parties can subsidize enforcement. Although such a fund would raise separate collective action problems, ample precedent supports the feasibility of this option. Alternatively, a successful party might be allowed to recover the costs of enforcement action (such as legal fees) from the losing party. Benefits from a successful enforcement action could also be increased by creating a bounty, for example, as provided under U.S. law in *qui tam* actions.

The effect of such financial incentives should not be overestimated, however. For industrialized countries, and even many large developing nations, the administrative costs of pursuing an enforcement action are likely to be insignificant. Other considerations and costs, including the potential for retaliatory action, damage to long-term relationships and mutually beneficial arrangements, and—if military intervention is pondered—the cost of human lives, are likely to be much more significant. Promoting enforcement through positive financial incentives also entails institutional costs. Not every violation merits sanctions. Even if an enforcement action is well grounded in fact and executed in good faith, it might not merit the expenditure of institutional resources necessary for vindication. If positive incentives for enforcement are sufficiently high,


176. As discussed above, compensation remedies will usually be inadequate incentives for enforcement actions because of valuation and proof of causation difficulties. Damage claims for environmental noncompliance may also accrue to individuals or businesses rather than states. As a result, analogous problems of misaligned incentives arise for states to initiate enforcement actions. Unless the claims involve significant national interests or are of a particularly high profile, "the state to which [the national] belongs may be unwilling to take up his case for reasons which have nothing to do with its merits." BRIERLY, supra note 37, at 218. But see, e.g., Trail Smelter Case (U.S. v. Can.), 3 REP. INT'L ARB. AWARDS 1905 (1941); see also John Read, *The Trail Smelter Dispute*, 1 CAN. Y.B. INT'L L. 213, 213–17 (1963).

177. Imposition of import tariffs as trade sanctions can create more significant financial rewards to the enforcer. See, e.g., Warren F. Schwartz & Alan O. Sykes, *The Economic Structure of Renegotiation and Dispute Resolution in the World Trade Organization*, 31 J. LEGAL STUD. 179, 199 (2002). But they also exact economic costs from the enforcer's economy.

178. It is also not clear how easily such incentives and disincentives could be calibrated to provide an appropriate set of incentives for enforcers. Neal Katyal has also pointed out in
they might encourage the abuse or over-application of sanctions to inconsequential breaches.\textsuperscript{179}

The alternative to positive inducement is to increase the cost of inaction.\textsuperscript{180} Negative incentives may be most useful in changing the behavior of states that would otherwise stand on the sidelines and ignore a treaty violation. This negative approach differs little from the use of punitive sanctions to encourage compliance in the first instance—the use of sticks rather than carrots. One might even view such efforts as the "enforcement" of sanctions obligations. Participation in multilateral sanctioning activity, such as a trade embargo, would become a sanctionable duty. Failure to participate would itself trigger punitive sanctions.\textsuperscript{181}

Lisa Martin has studied one version of this approach in her work on coerced cooperation in sanctioning activity.\textsuperscript{182} She concluded that, in recent decades, multilateral cooperation in maintaining trade sanctions occurred in a number of instances because the cost of noncooperation was a significant motivating factor. Failure to participate would have brought serious adverse consequences for the defecting party. For example, the European Community imposed trade sanctions in the 1980s against Argentina because of the Falklands War with the United Kingdom. Although "the Irish government developed a strong distaste for supporting the British through economic measures . . . , it maintained sanctions through their original term because the EC would not agree to lifting them. Afraid of jeopardizing other EC benefits, such as farm subsidies, Ireland reluctantly abided by its obligations."\textsuperscript{113} This example also demonstrates that threatened withdrawal of benefits may induce sanctions participation if the defecting party sufficiently relies on the benefits.\textsuperscript{184}

2. Changing the Value of Enforcement and the Rule of Law

The decision calculus can also be altered more indirectly by changing the value of enforcement. It may be possible to modify national


\textsuperscript{180} A less direct means of increasing enforcement benefits is to improve the effectiveness of sanctions. If enforcement failures are attributable to expectations that sanctions are ineffective or are unlikely to achieve compliance, appropriate sanctions choice and design can increase the efficacy of sanctions regimes.

\textsuperscript{181} See Mahoney & Sanchirico, \textit{supra} note 146.

\textsuperscript{182} MARTIN, \textit{supra} note 129.

\textsuperscript{183} Id. at 245.

\textsuperscript{184} See BAIRD ET AL., \textit{supra} note 102, at 184–85.
attitudes about the desirability of enforcement by promoting the incorpora-
tion of treaty norms and the rule of law into national law and culture. However, attempts to change norms, values, and identity encounter the same difficulties as transformational approaches to compliance. Such changes require internalizing treaty norms and altering governmental perceptions of the national interest. The potential for success is arguably no greater than the ability of transnational legal processes to promote compliance in the first instance.

The practical reality, however, may be less daunting. Normal treaty implementation processes purposefully incorporate treaty norms into national law. Furthermore, treaty norms often are already deeply held and intensely valued in many states. For example, many of the human rights norms embodied in the International Covenant on Civil and Political Rights reflect principles embedded in the legal systems of the United States, Western Europe, and other democratic nations. With respect to the environment, treaties are more the expression of existing agreement about the importance of environmental protection and sustainable development than the creation of new values and norms.

Instead, the difficulty of effecting change arises in encouraging systematic engagement with treaty norms so that they may serve as a consistent source of enforcement responses rather than as a pretext for other foreign policy objectives. In other words, the problem is a rule of law issue. Liberal theorists have argued that adherence to the rule of law in the international system depends in part on whether a state adheres to the rule of law within its internal governance system. Promotion of democratic structures and political systems based on the rule of law thus seem to be one avenue toward solidifying the rule of law internationally. Anne-Marie Slaughter and Laurence Helfer also have suggested that linking international institutions to national institutions committed to the rule of law, such as domestic court systems, can contribute to that goal substantially. In effect, engaging those parts of a nation's government that are committed to the preservation and implementation of legal norms can strengthen the country's commitment to international law.

185. In the context of the prisoner's dilemma, see supra note 102, one might view this approach as changing the pay-off matrix through means internal to the prisoners—perhaps, for instance, the prisoners have been led to see the wrongfulness of their ways with regard to "snitching" and betraying each other. They have been taught "honor among thieves."

186. See, e.g., Chayes & Chayes, supra note 2, at 8 (discussing "obedience to law"). But see Oona Hathaway, Do Human Rights Treaties Really Make a Difference?, 111 YALE L.J. 1935 (2002).

187. See, e.g., Teson, supra note 174.

188. Helfer & Slaughter, supra note 23, at 331.
3. Is More Enforcement Always Better?:
Limits on the Use of Coercive Sanctions

Approaches that promote more frequent and consistent enforcement responses to noncompliance must be tempered with consideration of whether more enforcement is always better. At least three issues inform this consideration: 1) the legality of the imposed sanctions, 2) legitimate but nonlegal reasons to decline enforcement, such as concerns about resources, fairness, and justice, and 3) the problem of treaty withdrawal.

First, responses to noncompliance may be limited by the very instrument that authorizes them in the first instance. Environmental treaty agreements generally do not include such mechanisms, but other limitations may apply. Threats or actual use of force remain subject to the prohibitions of the UN Charter. Sanctions must also be directed at the responsible state and not at third parties. They must be temporary in nature, proportionate to the violation, preceded by notice of the intent to impose sanctions and an offer to negotiate, and compliant with basic obligations, including peremptory norms of international law.

In the absence of a formal institutional enforcement mechanism, the legality of sanctions activities by states that are not directly and materially harmed by the breach is unclear. Articles 48 and 54 of the International Law Commission’s Draft Articles on State Responsibility acknowledge the interest of such states in the breach, but the Commission did not take a position on the permissibility of individual enforcement actions purely to vindicate a collective interest in treaty

---

192. See Draft Articles on State Responsibility, supra note 113, arts. 49(2)–(3), 53.
194. Gabčíkovo-Nagymaros Project, 1997 I.C.J. at 56; Air Services Agreement of March 27, 1946, 18 R.I.A.A. at 444. See also Draft Articles on State Responsibility, supra note 113, art. 52.
compliance. Nevertheless, states have participated in collective enforcement actions for gross violations of international human rights, even without claiming a special injury.

Beyond illegality, imposing sanctions for each and every instance of noncompliance may be inappropriate for other legitimate reasons. Just as enforcement decisions within national legal systems require the considered exercise of prosecutorial discretion, limited resources mandate that environmental treaty enforcement focus on the most pressing violations. Some breaches may be minimal or inadvertent and imposing sanctions may be of little institutional benefit. Other breaches, even if minor, may be persistent and willful, and may warrant sanctions because of their substantial symbolic significance and deterrent effect.

Considerations of fairness and justice—or situations of uncertainty or lack of proof of the breach—may also counsel against enforcement proceedings, especially given that defending against an enforcement action can be a burden in itself. Another consideration could be the potential for unintended collateral effects on “innocent” populations, or what one might call “punishment externalities.” In fact, the strongest sanctioning mechanisms, such as trade embargos and military interventions, usually affect the civilian population much more severely than any of the governmental actors they target. Because the hardships imposed on the target nation’s people can amount to collective punishment, a decision to proceed with sanctions in such instances can undermine important values.

The extra-legal, discretionary considerations noted here are not exhaustive, and, although they do not appear formally in treaties or agreements, they are nevertheless legitimate decision-making criteria. Such discretion, however, presents a converse risk: it may be abused,


197. See generally U.S. Dept. of Justice, Principles of Federal Prosecution, U.S. Attorneys’ Manual 9-27.100 to 9-27.320 (setting out criteria and considerations for initiating and declining federal criminal prosecutions). Prosecutors may consider in particular law enforcement priorities; the nature and seriousness of the offense; the deterrent effect of prosecution; a person’s culpability, criminal history, willingness to cooperate, or personal circumstances; and the probable sentence or consequences. Id. at 9-27.230. Impermissible considerations include the defendant’s race, sex, religion, and political beliefs; personal animus; or professional or personal advantage. Id. at 9-27.260. For a general evaluation of prosecutorial discretion, see James Vorenberg, Decent Restraint of Prosecutorial Power, 94 HARV. L. REV. 1521 (1981).


199. FISHER, supra note 123, at 48-51, 69; see also WILD, supra note 1, at 213–16, 218–19.
International Treaty Enforcement

[Paragraph discussing international treaty enforcement, including efforts to institutionalize parts of the enforcement process by shifting determinations to collective decision-making bodies.]

200. See, e.g., Reeve, supra note 31, at 91–133.
201. See supra Part I.B.2.
202. Since 1989, the Standing Committee has been responsible for “deciding on measures against non-compliant countries, including trade sanctions, on the basis of Secretariat recommendations.” Reeve, supra note 31, at 266–67. Institutionalization has not been complete, however. The individual members are representatives of their states and do not act in an independent capacity. Questions of impartiality and objectivity are thus not surprising. Reeve has suggested that party members of the Standing Committee have on occasion acted and voted blatantly on the basis of their own national self-interest rather than as representatives of other states or even of the international community. Id. at 267.
203. See VCLT, supra note 17, arts. 54, 56.
204. See, e.g., Helfer, supra note 111.
205. See supra Part I.B.2.
would serve the treaty system well. Otherwise, the adverse precedent of nonenforcement could significantly undermine the long-term viability of the treaty and the credibility of the treaty norms as a whole.

B. Promoting Entrepreneurial Enforcement

Another option for generating the enforcement good is "entrepreneurial enforcement" through the efforts of nongovernmental entities and private citizens to trigger or participate in enforcement action. The approach gives entities other than states the ability to take supplementary enforcement actions, analogous to environmental citizen suits206 or *qui tam* actions.

Taking private or entrepreneurial enforcement seriously is important for at least three reasons. First, entrepreneurial enforcement would shift some of the cost of enforcement from a limited number of states to a much greater number of interested individuals and nongovernmental organizations. Those willing and able to bear the cost of enforcement could participate in the process. As in the U.S. environmental regulatory system, enforcement entrepreneurs could step into an enforcement vacuum.207 Second, decentralizing enforcement recognizes the increased importance of transnational actors and the divergence of their interests from states. Entities such as environmental NGOs or human rights groups often have a greater interest in enforcing treaty norms than do states. Third, the converse benefit of decentralization is its ability to prevent the capture of the enforcement machinery by particular interest groups—to resist being held hostage by political considerations.

By allowing those interested in enforcement to seek the vindication of treaty norms themselves, the monolithic and unitary standing of states under international law is disaggregated.208 Constituent parts interested in furthering international values and norms can transcend other parts more oriented toward national self-interest or focused only on private, self-serving ends.209 The citizen submission process of the North American Agreement on Environmental Cooperation (NAAEC) reflects an entrepreneurial approach to noncompliance.210 Private enforcement of


210. Even though it is not a true enforcement mechanism, the number of submissions since its creation indicates that entrepreneurial involvement of private individuals and nongovernmental organizations can significantly increase the frequency of responses to
international treaty norms has also contributed significantly to the authority and effectiveness of the rulings of the European Court of Justice (ECJ) and the European Court of Human Rights (ECHR). 211

C. Treaty Design and the Structure of Regulation

A third approach to generating the enforcement good is to consider treaty design and the structure of regulation more broadly. Like efforts to encourage compliance, 212 improved treaty design can encourage enforcement by altering the structure (or “architecture”) of regulation. 213 One such approach focuses on the nature of environmental degradation and the structure of indirect regulation by most multilateral environmental agreements. 214

The vast majority of environmental treaties impose obligations primarily on national governments. 215 Since private individuals or businesses cause most environmental degradation, however, treaty commitments usually entail either explicit or implicit mandates for party states to regulate such activities. In effect, environmental treaties endeavor to “regulate” the regulatory activities of states. Frequently, noncompliance by party states arises because of a failure to implement the mandate to regulate. As a result, the entities responsible for treaty compliance and targets of enforcement actions (states) are not the same entities that ultimately must change their behavior to achieve the treaty objective (individuals and businesses). Sanctions therefore have little direct effect on the individuals or businesses even though these entities are actually responsible for the failure to achieve substantive treaty objectives.

212. See supra Parts I.B.2–3.
213. An example of utilizing treaty design to promote accomplishment of environmental treaty goals is the incorporation of market-based mechanisms in the Kyoto Protocol. See generally Claire Breidenich et al., supra note 98, at 323–25 (arts. 4, 6, 12, & 17). The market-based mechanisms are designed to make accomplishment of carbon emissions reduction goals cheaper and hence more palatable to the parties.
214. See, e.g., Lawrence Lessig, The New Chicago School, 27 J. LEGAL STUD. 661 (1998) (discussing a change in “architecture”). To use the prisoner’s dilemma metaphor, the prosecutor might seek an entirely different way of obtaining conviction. Rather than encouraging confession, incriminating evidence could also be obtained by looking for other evidence or eyewitnesses.
The historical experience of federal environmental regulation illustrates the resulting challenge for achieving environmental goals. Prior to the vast expansion of the federal government's power to regulate the environment in the 1960s and 1970s, environmental regulation was primarily the responsibility of individual states. When the failure of state and local governments to manage rising levels of pollution and environmental degradation became a national concern, the federal government initially intervened with financial aid and research assistance. These programs failed to achieve the desired pollution abatements. Congress then began to require states to adopt various environmental standards. These efforts failed as well. Significant improvements came only when the federal government asserted primary regulatory authority in the 1970s. Those legislative changes vested a newly created Environmental Protection Agency (EPA) with permit issuance, standard-setting, and criminal, civil, and administrative enforcement authority. This expansion of federal authority drastically changed the regulatory dynamic. Rather than promoting state regulation and simply "regulating the regulators," the federal government asserted direct oversight over environmental matters, circumventing the states.

Contemporary multilateral environmental agreements have largely followed the model of pre-1970s U.S. regulatory efforts: committing member governments to focus domestic regulatory attention on environmental issues, providing for information exchange and communication between the treaty parties, and assisting in various capacity-building efforts. The historical experience of the United States suggests treaty norms should also focus on individual conduct, in addition to enlisting the help of national governments.

The result would forge a tighter connection between treaty objectives and the mechanisms designed to achieve them. First, it would separate the interests of the enforcer (the state) from those of the target (the polluter). Party states would not face the unappealing prospect of a

216. For a related discussion of the problem of imposing sanctions on the U.S. states, see FISHER, supra note 123, at 42-46.
218. Furtrell, supra note 217, at 31. Such steps included requiring states to adopt water quality standards in 1965 and increasing federal involvement in air pollution issues by creating an ambitious framework to improve air quality in 1967. Id.
219. See generally id.
coercive sanctions mechanism that could be used against them in the future. It would also avoid the potential damage and alienation that punitive sanctions can cause to the cooperative relationship between the treaty institution and the member states. Strong enforcement mechanisms could thus become more palatable to the most powerful states, whose power and sovereignty would otherwise be challenged directly. Second, focusing on individual conduct strengthens the effectiveness of sanctions, which can directly affect the incentive to pollute. When sanctions are imposed on governments, responsible officials often lack a significant personal stake in compliance and must consider competing government priorities and national interests; resistance is much likelier in this context. Finally, making norms and the associated sanctions applicable to particular individual conduct strengthens the message of moral condemnation.

Another approach to facilitating sanctions processes is to privatize both compliance and enforcement. Ronald Mitchell's study of oil pollution prevention efforts under the International Convention for the Prevention of Pollution from Ships (MARPOL) is illustrative. Mitchell found that directly imposing equipment standards for oil tanker design through MARPOL decisions was a far superior strategy in achieving oil pollution prevention goals than directly limiting the discharge of pollutants that had to be enforced by party states. The equipment standards were largely irreversible once implemented. By contrast, discharge limits required intense monitoring efforts in order to be effective. The standards also took advantage of existing government enforcement mechanisms and shifted the focus from state parties to the entities engaged in the conduct that could result in oil pollution. Finally, the equipment standards also recruited classification societies and vessel insurers as norm enforcers. These entities have taken on significant roles in ensuring that new vessel construction conforms to MARPOL standards. The overall result was to shift enforcement responsibility to private entities and allow international legal norms to apply directly

---

223. Regulatory approaches that required government enforcement, such as monitoring, investigation, and prosecution of discharge prohibitions, were enforced at very low frequency. In contrast, approaches that could be enforced by private parties led to virtually 100% compliance. See Ronald B. Mitchell, International Oil Pollution at Sea: Environmental Policy and Treaty Compliance 123-88, 221-92 (1994).
224. Id. at 263-65.
225. The primary sanction available to classification societies is nonissuance of classifications. The effect of the sanction is to make the ship ineligible to obtain insurance coverage, making it effectively impossible to operate.
within, or to penetrate into, domestic legal systems, thereby engaging their transformative function more effectively. 226

** * * * **

As a public good, institutional deterrent sanctions encounter obstacles of strategic behavior, the second order nature of the collective action problem, and the weak normative foundations of treaty compliance and enforcement in generating them. However, there are at least three distinct solutions for encouraging higher levels and more systematic enforcement of treaty norms: 1) modification of the enforcement calculus, 2) promotion of entrepreneurial involvement to shift the costs and burden of enforcement, and 3) alteration of treaty structures and designs.

Beyond pointing to approaches to solving the enforcement problem, this analysis can also be utilized to understand the prospect of success of new enforcement mechanisms. I now turn to an examination of the noncompliance mechanism of the Kyoto Protocol and its implications for future environmental treaties.

V. AN EXAMINATION OF THE 1997 KYOTO PROTOCOL’S NONCOMPLIANCE MECHANISM

The newest member of the family of treaty enforcement instruments is the noncompliance mechanism of the 1997 Kyoto Protocol. The mechanism introduces new ideas and holds much promise, but it also faces significant challenges. This section will examine the mechanism in light of the foregoing discussion.

The Kyoto Protocol to the UN Framework Convention on Climate Change establishes binding greenhouse gas (GHG) emissions limits for industrialized countries. 227 Beginning in 2008, these parties will, on average, have to cap their GHG emissions at five percent below 1990 levels. Country-specific emissions caps are set out in Annex B to the Protocol. The Kyoto Protocol also includes market-based mechanisms designed to create flexibility and ease compliance with the emissions caps. 228 Compliance with the caps is to be policed primarily through a noncompliance

---

228. See id. arts. 4, 6, 12, & 17. See generally Breidenich et al., supra note 98, at 323–25.
mechanism, as authorized by Article 18.\textsuperscript{229} With ratification by Russia, the Protocol entered into force on February 16, 2005. The mechanism was adopted at the first meeting of the parties in December 2005.

A. An Overview of the Noncompliance Mechanism

A twenty-member Compliance Committee administers the noncompliance mechanism. The committee is subdivided into an enforcement branch, a facilitative branch, a bureau, and a plenary committee.\textsuperscript{230} One half of the membership serves in the enforcement branch and the other half in the facilitative branch. Members of each branch are selected with an eye to reflecting geographical diversity, including small island nations, and based on their Annex I membership status.\textsuperscript{231} The chairs and vice-chairs of each branch comprise the bureau, which has as its primary responsibility the task of allocating "questions of implementation"—potential noncompliance issues—between the two branches.\textsuperscript{232} The plenary committee is made up of all twenty members and handles all administrative and reporting matters.\textsuperscript{233}

The facilitative branch is similar to the Implementation Committee of the Montreal Protocol and is "responsible for providing advice and facilitation to Parties in implementing the Protocol, and for promoting compliance by Parties with their commitments under the Protocol."\textsuperscript{234} By contrast, the enforcement branch addresses specific instances of noncompliance with the Annex B emissions caps; the methodological and reporting requirements; and the eligibility requirements of the Clean Development mechanism (Article 6), Joint Implementation (Article 12), and emissions trading (Article 17).\textsuperscript{235} It is also responsible for applying the "consequences" of noncompliance. The decisions of the branch are to be adopted by consensus. If consensus cannot be reached, a three-fourths majority—including simple majorities each of Annex I and of non-Annex I countries—must support the decision.\textsuperscript{236}

\begin{itemize}
  \item \textsuperscript{229} Procedures and Mechanisms Relating to Compliance under the Kyoto Protocol, Decision 24/CP.7, U.N. Doc. FCCC/CP/2001/13/Add.3 (Nov. 10, 2001) [hereinafter Decision 24/CP.7]. Two additional means of addressing noncompliance are the multilateral consultative process of the Framework Convention and the dispute settlement provisions. Kyoto Protocol, \textit{supra} note 227, arts. 16, 18. These two processes are to operate unaffected by the noncompliance process. Decision 24/CP.7 § XVI.
  \item \textsuperscript{230} Decision 24/CP.7, \textit{supra} note 229, § II.
  \item \textsuperscript{231} Id. §§ II(6), IV(1), V(1).
  \item \textsuperscript{232} Id. § VII(1).
  \item \textsuperscript{233} Id. § III.
  \item \textsuperscript{234} Id. § IV(4).
  \item \textsuperscript{235} Id. § V(4).
  \item \textsuperscript{236} Id. § II(9). Annex I to the UN Framework Convention includes the industrialized countries included in the Kyoto Protocol’s Annex B, plus Turkey.
\end{itemize}
Questions of implementation may be brought to the attention of the Compliance Committee by reports of the expert review teams, a state party with respect to itself, and other parties when supported by corroborating evidence.\textsuperscript{237} The matter is dealt with in two stages. In the first stage, the responsible branch engages in a preliminary examination of the matter to ensure it is "supported by sufficient information," is "not de minimis or ill-founded," and is "based on the requirements of the Protocol."\textsuperscript{238} If the noncompliance complaint passes the preliminary examination, a substantively more detailed inquiry ensues in the second stage. Deliberations by both branches during this stage may be based on a broad range of relevant information, including expert advice.\textsuperscript{239} Decisions must be supported by conclusions and reasons and, together with the information considered, will usually be made available to the public.\textsuperscript{240}

The noncompliance mechanism also contains specific provisions for the management of a second stage enforcement branch proceeding.\textsuperscript{241} First, the party whose noncompliance is at issue may submit its own materials on the issue and may request a hearing.\textsuperscript{242} After review of the information before it, the enforcement branch must then either adopt a preliminary finding that the party concerned is not in compliance or, alternatively, issue a decision not to proceed.\textsuperscript{243} In the event of a preliminary finding of noncompliance, the party concerned may provide additional written comments.\textsuperscript{244} Thereafter, the branch is to issue a final decision either confirming or modifying the preliminary finding.\textsuperscript{245} A party may appeal enforcement branch decisions relating to compliance with a party’s emissions caps to the full set of Kyoto Protocol parties if the party “believes it has been denied due process.”\textsuperscript{246} If no appeal is taken, the decision becomes “definitive” after forty-five days.

Overall, the consequences of the noncompliance mechanism are “aimed at the restoration of compliance to ensure environmental integrity, and [intended to] provide for an incentive to comply.”\textsuperscript{247} Remedies applied by the facilitative branch will provide assistance and aid to help

\begin{itemize}
\item \textsuperscript{237} Id. § VI(1); Kyoto Protocol, supra note 227, art. 8(3).
\item \textsuperscript{238} Decision 24/CP.7, supra note 229, § VII(2).
\item \textsuperscript{239} Id. §§ VIII(3)–(5).
\item \textsuperscript{240} Id. §§ VII(7)–(8), IX(6), IX(9)–(10).
\item \textsuperscript{241} With respect to violations that might make parties ineligible for participation with the Articles 6, 12, and 17 Kyoto mechanisms, the enforcement branch applies a special expedited procedure. Id. § X.
\item \textsuperscript{242} Id. §§ IX(1)–(2).
\item \textsuperscript{243} Id. § IX(4).
\item \textsuperscript{244} Id. § IX(7).
\item \textsuperscript{245} Id. §§ IX(7)–(8).
\item \textsuperscript{246} Id. § XI(1).
\item \textsuperscript{247} Id. § V(6).
\end{itemize}
International Treaty Enforcement

a party remedy its breach. In contrast, the measures applied by the enforcement branch are designed to be more coercive and are automatically applicable upon a final determination of noncompliance. They include the issuance of a noncompliance declaration and development of a compliance plan. In addition, when a party has failed to limit its emissions as required by Annex B, the result is

(a) Deduction from the Party’s assigned amount for the second commitment period of a number of tonnes equal to 1.3 times the amount in tonnes of excess emissions; . . . [and]

(c) Suspension of the eligibility to make transfers under Article 17 [emissions trading] . . . until the Party is reinstated in accordance with section X.

The noncompliance mechanism explicitly provides that for subsequent commitment periods, the rate of deduction for excess emissions is to be determined by amendment.

B. A Critique

Even before its official approval and application, the noncompliance mechanism was hailed as “the most robust” and “the most innovative and elaborate noncompliance procedure for any existing multilateral environmental agreement.” Many of its features are unquestionably novel and innovative for an environmental treaty. They make unique contributions toward the goals of the Kyoto Protocol, but questions about the mechanism’s overall effectiveness remain.

1. Strategic Behavior

One of the most important accomplishments of the Kyoto mechanism is to institutionalize the process of enforcement in a neutral and independent body. The creation of an enforcement branch reduces the

248. Id. § XIV.
249. Id. § XV.
250. Id. §§ XV(1)–(3). When eligibility for the mechanisms under Articles 6, 12, and 17 is at issue, suspension of eligibility results. Id. § XV(4).
251. Id. § XV(5). Emissions trading eligibility can be reinstated if the compliance plan demonstrates that the party concerned will be able to meet its emissions limit in the next commitment period. Id. §§ X(3)–(4).
252. Id. § XV(8).
cost to any individual party of initiating an enforcement action. Although individual parties or an expert review team will need to trigger the process, the enforcement branch will bear the cost of pursuing these issues. Furthermore, the structure of the branch will reduce the likelihood that political manipulation and expediency will be a significant factor in its decisions. Members of the branch will serve in an independent capacity. The membership of the enforcement branch explicitly anticipates inclusion of an individual from small island nations, whose stake in the effective operation of the Protocol is greatest. Noncompliance penalties are applied automatically and are mostly predetermined. NGOs may provide input into the process. Both the branch’s determination and the information submitted to it are made available to the public, increasing transparency.\textsuperscript{255} One commentator has gone so far as to claim the mechanism functions “much like a court.”\textsuperscript{256} In short, the incentive to forego enforcement for the sake of political expediency will be minimal. Finally, the substantial and fixed size of the Annex B noncompliance sanction—thirty percent of excess emissions—will give the process a significant punitive element.\textsuperscript{257} It will create a greater incentive to trigger enforcement actions, because the sanction will be more certain and coercive and, hence, more effective. Compliance hopefully will be the preferred response.

The biggest question that remains, however, is whether the penalties will be sufficient to alter the incentives for strategic behavior so that initiation of enforcement becomes attractive. Financial penalties, though proposed, were not incorporated into the mechanism. Reinstatement of eligibility for emissions trading appears relatively easy. Even the thirty percent excess emissions penalty is likely to have only limited effect since Article 18 stipulates that any procedures that entail binding consequences are subject to adoption by the amendment process. Refusal to ratify such an amendment or even to participate in the subsequent commitment period could open a back-door escape from penalties.

Delaying application of penalties until the following commitment period poses two additional problems. First, since each party’s GHG emissions reductions for the subsequent commitment period have not been determined, the severity of the penalties can be blunted by manipulating the future assigned amounts. Second, given that the commitment period lasts five years, delays may also reduce the political accountabil-

\textsuperscript{255.} Decision 24/CP.7, supra note 229, §§ VIII(4), VIII(6).
\textsuperscript{256.} Wiser, supra note 63, at 86. A more appropriate characterization may be an administrative tribunal, as the enforcement officer and the adjudicator are ultimately controlled, albeit only to a limited extent, by the same superior officials—the Meeting of the Parties.
\textsuperscript{257.} In addition to simple deterrence, the penalty may be viewed as a type of liquidated damage that addresses difficult-to-measure costs of noncompliance.
ity of government officials responsible for noncompliance. Willful ignorance or acceptance of noncompliance may be a possibility.

The most significant threat to systematic application of the enforcement process, however, remains manipulation via implicit or explicit threats of treaty denunciation. If denunciation is perceived as potentially causing significant disruptions, even the independence of the enforcement branch might not protect against a determination that nonenforcement would ultimately be in the best interest of the institution.

2. Second Order Collective Action

To some extent, the form of the sanctions helps to overcome the second-order nature of the collective action problem. Suspension of the right to engage in emissions trading and the thirty percent penalty take advantage of processes that already exist within the Kyoto Protocol’s administrative structure. Other parties will not need to marshal new cooperative efforts or resources for implementation. Instead, emissions accounting and trading processes are adjusted to reflect additional emissions reduction obligations or ineligibility to trade.

Unfortunately, the sanctions themselves do not become binding until the Kyoto Protocol is amended and ratified, and they will not apply until the subsequent commitment period. The trading suspension appears to be easily reversible, and the longer the parties wait to proceed with the amendment and ratification process, the more likely it is that some parties will know in advance the cost of compliance. Such parties may come to see opposition to amendment of the Protocol as in their best interest.

3. Norms and the Rule of Law

The noncompliance mechanism incorporates a number of features to promote treaty norms and the rule of law. The explicit requirement that any implementation question be supported by sufficient evidence, “based on the requirements of the Protocol,” and “not . . . ill-founded,” will ensure that the enforcement mechanism adhere closely to the treaty’s substantive goals and values. Handling de minimis violations by preliminary examination also eliminates nuisance actions and abuse of the enforcement process for harassment purposes, thus minimizing misuse of the noncompliance mechanism.

The automatic application of punitive consequences upon a noncompliance finding and limitation of appeals to due process issues reduce uncertainty about the duty to comply. At the same time, reference to due process, and the requirement that decisions be supported by

258. Decision 24/CP.7, supra note 229, § VII(2).
259. Id. § XI(1).
conclusions and reasons, promotes legitimacy and fairness of the enforcement action.\textsuperscript{260} The overall effect is to increase the transparency of the enforcement process and reduce the risk of arbitrary or politically motivated decisions.

Opportunities to manipulate or avoid application of treaty norms, however, potentially undermine implementation. Sanctions do not become binding until the Kyoto Protocol is amended, and the enforcement of such amendments is delayed until the following commitment period. Only the target of enforcement has the right to appeal an adverse decision of the Compliance Committee,\textsuperscript{261} making it impossible to correct misapplications of treaty norms if they result in nonenforcement. While the use of a criminal due process and double jeopardy model is favorable to the enforcement target, its appropriateness here seems dubious.

The noncompliance mechanism also does not elaborate on the meaning of the \textit{de minimis} threshold or the content of the due process requirement. Does \textit{de minimis} designate an absolute quantity or a percentage fraction? Would the comparison standard be the party's total assigned amount of emissions or only the emissions reductions (or increases) inscribed in Annex B? Even if developing countries are exempted for the time being, the GHG emissions among individual Annex B states, such as the United States and Monaco, can vary by several orders of magnitude. A fixed threshold that is reasonable for Monaco will be meaningless to the United States, and vice versa.

The imprecision of the due process requirement poses even greater problems. Due process can mean not only fair procedures but also substantive legal rights and defenses that may implicate principles of state responsibility or excuses such as impossibility. Full application of the poorly defined concept could upset expectations about the strictness of Protocol requirements and the likely consequences of noncompliance. Similarly, the noncompliance mechanism offers no guidance on how threats of denunciation are to be handled in a principled and equitable fashion.

Finally, the Protocol does not address how special circumstances or other conditions—such as when a violation is minor but not \textit{de minimis}—could justify a variance from the specified thirty percent sanction. The mandatory nature of the penalty provisions seems to preclude that possibility. Simply abolishing discretion in the penalty assessment process, however, does not guarantee that discretion will be eliminated. As the federal experience with criminal sentencing guidelines indicates, discretion simply appears in other areas. The question is not \textit{whether} the

\textsuperscript{260} \textit{Id.} §§ IX(5), IX(9).

\textsuperscript{261} \textit{Id.} § XI(1).

legal process will accommodate the need for fairness in imposing sanctions, but rather how it will do so. The appropriate application of enforcement discretion as a way of accommodating concerns about fairness, justice, or effective use of enforcement resources remains an unresolved problem.

Ultimately, the noncompliance process has not adequately articulated how nonenforcement may be the legitimate and proper result of discretionary judgments and legal excuse doctrines. Although strengthening sanctions processes is necessary, considerations of fairness cannot be ignored. As legal norms, treaty provisions are authoritative but also limited by other doctrines and equitable considerations in actual application.

C. The Underlying Problem of Treaty Design

The Kyoto Protocol's noncompliance mechanism represents a great step forward. Other underlying problems of treaty design, however, will impede the effectiveness of the sanctions process and the actual accomplishment of Protocol goals. The climate change treaties have been modeled on the framework convention-protocol design of the ozone treaties. Like the Montreal Protocol, the Kyoto Protocol's primary regulatory approach is to limit the atmospheric emissions by binding numerical targets, the Annex B assigned amounts.

In adopting numerical targets, however, the Kyoto Protocol ignores critical factors that differentiate it from the Montreal Protocol. Traditionally, the production of ozone depleting substances (ODS) took place in a concentrated industry with only a handful of dominant manufacturers. The phase-out schedules in the Montreal Protocol for the production of ozone depleting substances were transparent and unambiguous in signaling to these few industry actors that each of them had to phase out production. Little was required by national governments to operationalize the Protocol's requirements.

Unfortunately, even though the Kyoto Protocol's Annex B limitations seem as deceptively simple and clear as the Montreal Protocol's phase-out targets, the Annex B limitations differ in fundamental respects. Unlike true emissions limitations of the type applied to particular


263. See Kyoto Protocol, supra note 227, arts. 3(1), 3(7), Annex B.

264. The Montreal Protocol limits both production and consumption of ozone depleting substances (ODS). However, consumption is calculated by adding production plus imports minus exports. Consumption of ODS is thus directly correlated to production of ODS. See Montreal Protocol, supra note 69, art. 3.
industrial polluters,\textsuperscript{265} regulation of greenhouse gas emissions is in essence an attempt to control the varied uses of fossil fuel, including the activities of power plants, the gamut of industrial users of oil products, individuals using personal vehicles or heating homes, and the entire public transportation industry—in short, the activities of a country's entire economy. The emissions limits thus require parties to restrict energy use, change transportation policies, and address land use changes. They will require large-scale changes to national economies and lifestyles and will force governments to make complex choices and decisions about implementation.\textsuperscript{266} Like many other environmental agreements, the Kyoto Protocol creates a mandate to regulate, with all its attendant difficulties. To facilitate enforcement, the regulatory regime design will need to be altered to focus more specifically on industries or particular activities that contribute to GHG emissions. Continued insistence on wholesale, generic regulatory mandates will present sustained enforcement difficulties.

\section*{Conclusion}

Systematically triggering institutional deterrent sanctions in response to environmental treaty breaches remains a difficult problem. The turn to alternatives in contemporary international practice has circumvented some of the difficulties, but these approaches include drawbacks, and each by itself is unable to duplicate the instrumental and normative functions of enforcement.

Understanding the public good characteristics of enforcement explains many of the difficulties inherent in enforcement and suggests constructive improvements to environmental agreements. None of the possible avenues is likely to be easy, but they all offer options that do not require eschewing institutional deterrent sanctions. For those committed to strong rule of law, these options also present the possibility that enforcement can make a greater contribution toward the development and maturation of international environmental law.

\textsuperscript{265} The problem of the Kyoto Protocol closely resembles the problem of regulatory implementation of the hazardous air pollutants provisions of the Clean Air Act in the 1970s and 1980s. See generally John Dwyer, \textit{The Pathology of Symbolic Legislation}, 17 \textit{Ecology L.Q.} 233 (1990).

\textsuperscript{266} See generally \textit{Victor}, supra note 27.