Working Paper

Domestic Compliance with International Environmental Agreements: A Review of Current Literature

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Preface

Hundreds or even thousands of international legal instruments on "the environment" are in existence. What happens to international environmental agreements once they are signed, and how does the process of implementing such agreements influence their effectiveness? These are the questions that motivate the IIASA project "Implementation and Effectiveness of International Environmental Commitments (IEC)". Research teams are examining these questions from many angles and with different methods.

One of the areas of the IEC project where other scholars have devoted much attention is the question: "Why do nations and people comply with international law?" The question which is at the nexus of international law and political science, is one of the few areas where scholars from both disciplines have made substantial contributions to a common question.

In this paper, Alexei Roginko surveys the literature on compliance. The paper offers a very helpful starting point for scholars wanting to conduct further research in the field. Notably, the paper illustrates how the "compliance" question is one that requires insights from the literature on domestic and international politics. The link between domestic and international is a topic that is now receiving much attention by political scientists who are attempting to merge models of poltical behavior at the national level (where national "interests" are formed and interational policies are implemented) with behavior at the international level (where international policies, such as treaties and standards, are negotiated and codified).

The IEC project is now conducting several studies on the implementation of international politics at the domestic level. The issues raised and literature reviewed in this paper are a starting point for that research.

The context of this paper in the IEC project

This paper is one of several IEC working papers that survey the existing literature, place the project in a framework of prior research, and identify the major questions that deserve further study. At the outset, members of the project decided to prepare these papers to ensure that we were adequately aware of other research in the field and, especially, to ensure that we would be studying the most important questions in the proper context. The papers that play these roles are listed below, divided into each of the three areas of IEC's research program. Fuller descriptions of different parts of IEC's research program are available in the IEC project description (copies available from IEC) and in the prefaces and working papers listed below.

1. Historical case-study and comparative research

Most of IEC's research is directed at studying how international environmental agreements have been implemented historically through examination of case-studies and focussed comparisons among selected cases. Teams are studying domestic implementation as well as international and transnational processes. Eight papers review the relevant literature and establish the context and research questions:

Research on implementation at the domestic level in Western Europe and in the Eastern economies undergoing transformation:

- Steinar Andresen, Jon Birger Skjærseth, and Jørgen Wettestad, 1994, "Regime, the State and Society--Analysing the Implementation of International Environmental Commitments".
- Vladimir Kotov, 1994, "Implementation and Effectiveness of International Environmental Regimes During the Process of Economic Transformation in Russia".
- Elena Nikitina, 1994, "Domestic Implementation of International Environmental Commitments: a Review of Soviet Literature".
- Alexei Roginko, 1994, "Domestic Compliance with International Environmental Agreements: a Review of Current Literature".

Research on international and transnational processes of implementation:

- David G. Victor with Owen J. Greene, John Lanchbery, Juan Carlos di Primio and Anna Korula, 1994, "Roles of Review Mechanisms in the Effective Implementation of International Environmental Agreements".
- David G. Victor, John Lanchbery and Owen Greene, 1994, "An Empirical Study of Review Mechanisms: Report on Work in Progress".
- David G. Victor with Anna Korula, 1994, "What Is an International Environmental Agreement?"
- Owen J. Greene, 1994, "On Verifiability, and How It Could Matter for International Environmental Agreements".

2. Development of a database

IEC is developing a database that will consist of key variables related to the development and effective implementation of international agreements. It will allow systematic use of historical evidence from a large number of cases. The goal is to make possible the testing of hypotheses and the drawing of general conclusions about which variables are causally linked to "effectiveness". One paper reviews the major hypotheses related to the formation and effectiveness of international regimes:

- Marc A. Levy, Oran R. Young and Michael Zürn, 1994, "The Study of International Regimes".

3. Other research and policy activities

IEC researchers are applying their research findings to current and future policy issues as opportunities arise. The project is also sponsoring a major simulation-gaming exercise to explore issues of institutional design, implementation and compliance in international environmental agreements. Simulations can help promote creative thinking about political options for international management of climate change, identify potential pitfalls, integrate policy-relevant knowledge from a variety of domains, and identify important policy-relevant knowledge needs. One paper surveys the benefits of using simulation-gaming as a policy and research tool:

- Edward A. Parson, 1995, "Why Study Hard Policy Problems With Simulation-Gaming?"

The above list includes only the papers that the project has used in establishing the framework for its research activities. A complete list of publications and copies of papers are available from the IEC offices at IIASA.

DOMESTIC COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL AGREEMENTS: A REVIEW OF CURRENT LITERATURE

Alexei Roginko

This essay is an attempt to review the main determinants of compliance with international environmental commitments at the domestic level, with special attention to: 1) the mechanisms by which states determine whether or not to comply, and the roles actors, other than governments, play in these issues, and 2) regime rules and factors exogenous to the regime that affect variation in compliance, with implications for mechanisms by which compliance can be improved.

Definitions

Several writers who have written extensively on the subject provide quite similar definitions of compliance. Fisher (1981:20) defines compliance as conduct that conforms with a rule of international law. Young (1979:104) defines it as "actual behavior of a given subject [that] conforms to prescribed behavior". Wasserman (1992:23), writing about domestic environmental enforcement, describes compliance as "essentially a state of being, when a regulated source is achieving required environmental standards, regulations, or permit conditions by meeting expected behaviors in processes and practices". Mitchell (1992:26) uses compliance to refer to an actor's behavior that conforms to a treaty explicit rules. As a subset of compliance, he distinguishes treaty-induced compliance as behavior that conforms to such rules because of the treaty compliance system.[1] While not always distinct in practice, we can conceptually distinguish between violation and non-compliance, using the former term to refer to an actor's behavior that intentionally fails to conform to such rules and the latter term to refer to such behavior when non-conformance is due to inadvertence or an incapacity to comply.

Compliance alone does not mean the same as achieving treaty goals. First, compliance with a given treaty rule is neither necessary nor sufficient to achieve treaty aims. It is not necessary because low compliance with a stringent rule may nonetheless accomplish treaty purposes. Compliance alone is not sufficient, because even perfect compliance with the "wrong" rule leaves treaty aims unaccomplished or even undermined (Young, 1991). Second, by defining compliance as actions conforming with explicit rules, behavior that facilitates treaty aims constitutes compliance only if those aims find expression in a treaty

[1] Mitchell (1992:28) defines a "compliance system" as the complex of rules and procedures that determine the degree of compliance actually elicited with a given rule, subdividing it further into three components: (1) the primary rule system regulating the basic activity which is the target of regulation, (2) the compliance information system intended to collect, analyze, and disseminate information regarding the instances of, and parties responsible for, violations and compliance, and (3) the non-compliance response system governing the formal and informal responses, positive inducements or negative sanctions, undertaken to induce the non-compliant actors to comply.

rule. For example, enacting treaty regulations into domestic law represents compliance only if the treaty explicitly requires such action (Mitchell, 1992).[2]

I. Mechanisms by which states determine whether to comply

1. Domestic compliance and non-state actors

Compliance with environmental treaties often involves a two-level enforcement game that mirrors the two-level negotiation game initially developed by Putnam (1988) and recently elaborated in Evans et al. (1993) with multiple case studies. The vast array of research on environmental politics at all levels demonstrates that the behavior that causes the environmental harm may be only partially susceptible to government control. Governments themselves may be reluctant to enforce the rules established in the treaty. Treaties addressing arms control or international trade predominantly target government action for regulation. In contrast, the primary, if often indirect targets of much environmental regulation are individual and corporate actions not directly under governmental control. In environmental treaties, especially, non-governmental entities play formal and informal roles within the compliance information and non-compliance response system. [3] Especially in environmental affairs, we need to look inside the "black box" of the state to identify the true sources of compliance (Mitchell, 1992).

Non-state actors often play an important role in providing effective responses to international environmental problems. For example, environmental NGOs clearly interact with international environmental regimes and institutions in complex ways. NGOs are often the sources of policy innovations at the international level, the instruments of diffusion of international norms and practices, and sources of national-level information at the international level. NGOs are often exercising greater influence than students of international politics have come to expect from actors who are weaker, according to conventional criteria, than their corporate and state adversaries (Haas et al., 1993).

Business firms also interact with international environmental organizations and help to shape international rules. Corporations are especially significant in determining the range of technological solutions to environmental problems, hence in affecting the regime effectiveness. As a general rule, businesses that are directly affected by environmental regulation tend to resist the national and international policies they believe would impose significant new costs on them or otherwise reduce their expected profits. However, when businesses face stronger domestic regulations on an activity with global environmental dimension, they are likely to support international action to impose similar standards on competitors abroad, and may prefer an international agreement's standards to domestic ones,

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[2] We should bear in mind that compliance is an "artifact of the standards" (Ausubel and Victor, 1992:22) or a "function of the rule" (Fisher, 1981), and that the primary interest of the current project lies, not just in determining whether a part to a treaty complies with its rules, but rather in tracing and uncovering complex relationships between rules and actors' behavioral changes. Nonetheless, partial, full, or over-compliance could be a useful measure (proxy) of the effectiveness of treaty rules and standards, provided that the central role of rule- and standard-making is not overlooked. Insofar as this is true, the study of compliance is relevant to a research program on the implementation and effectiveness of international environmental agreements.

[3] See Chayes and Chayes 1991b: 318.

because the former are less stringent (Porter and Brown, 1991).

To elicit behavioral change effectively requires environmentally concerned states either to find mechanisms for directly influencing the behavior of private, sub-national actors who are nationals of other countries, or to find means to induce reluctant governments to influence that behavior themselves. Environmental treaties are prone to these problems, not evident in most other issue areas (Mitchell, 1992).

Ultimately, it is national decisions that affect environmental quality, even though international measures may have been necessary to overcome national reluctance to act and to reach harmonized national measures (Haas et al., 1993).

2. Types of national policy efforts: leaders and laggards

Haas, Keohane and Levy (1993) identify four types of national policy efforts:

1 . Some countries simply avoid international obligations by failing to sign treaty commitments.

2. Others accept commitments but fail to live up to them.

3. A third group accepts commitments and achieves compliance.[4]

4. A fourth group goes significantly further than explicit obligations require.

Countries that fall into first two categories are frequently called "laggards". Typically they enact much weaker environmental measures than others. The economic costs of increasing these measures may be high, and non-compliant laggards may have agreed to regulation only reluctantly. Many laggard countries have also supported collective policies, knowing that they would not have the scientific, technical or administrative capacity to implement the rules, but hoping that "joining the club" would entitle them to assistance ("free riders"). Rich laggards (such as Britain with respect to acid rain) may also respond to political embarrassment or pressure from their own scientists or the public. Poor ones may be responsive to pressure, but require financial aid. In fact, in some areas such as the Baltic Sea, international regulations have been the means for setting priorities for investment that required funding, either from public authorities in the wealthier countries of the region, or by private investors.

"Leaders", on the other hand, willingly sign and comply with treaty commitments, and often go further than these commitments require. Leaders commonly possess a more advanced domestic environmental policy apparatus, and are often subjected to more intensive domestic pressure than other countries. Leaders are often motivated by being the first to suffer environmental damage; being first often means being most severely affected as well (Haas et al., 1993). States may also be tempted to lead because of potential economic benefits along at least two lines: first, leaders are setting technological standards and thus shape industrial policies. Once established, standards are self-enforcing, but the details of established standards have large consequences for the stakeholders, and the standard-setting process is sensitive to leadership, both because leaders can set the path and because leaders

[4] Certainly, there are variations within this group as to the degree of compliance. Total compliance is seldom achieved, but outright non-compliance with any treaty rules also does not occur frequently.

who are ineffective face enormous losses if their standards are not adopted. Second, there may be simpler economic benefits from leadership, such as those derived from introducing 'environment-friendly' replacement products which are more profitable than the old ones. One example might be the phaseout of old-generation CFCs, which are less profitable than the replacements, with the stakeholders organized to support the phaseout, and the suppliers and consumers losing, because they were not organized well enough (see Maxwell and Weiner, 1993).

Thus, domestic pressure, advanced policies, disproportionate damage and economic benefits, all give leaders higher levels of concern and capacity than others, which prompts them to promote institutional solutions to environmental problems.

3. Causes of voluntary compliance

What factors would lead a government or a subnational actor to comply with treaty rules even in the absence of a system for identifying and responding to non-compliance? Many authors argue that a significant degree of compliance can be expected from an actor even if any efforts by other parties to encourage compliance of treaty rules or discourage their violation are absent[5] (see also para 4.1). As the following discussion suggests, in these cases compliance is not caused by a treaty but merely coincides with it.

3.1 Rules require no change

An actor may comply with primary treaty rules because they do not require any change in behavior. Through successful negotiation a country may place the entire burden for behavioral change on other states. To the extent that agreements reflect the lowest common denominator policies, "leader" states and their industries may find themselves in compliance without even changing their behavior (Mitchell 1992).

3.2 Rules are ambiguous

States may comply by negotiating vague and ambiguous primary treaty rules - either because of sincere differences about their contents, or in an effort to garner environmental praise by agreeing to terms that seemingly require behavioral change, but that, on closer examination, prove sufficiently vague to continue business as usual. In either case, since "they will naturally interpret and apply the provisions of international law in the light of their particular and divergent conceptions of the national interest" (Morgenthau, 1978), states will behave as their interests dictate and claim that their behavior is in compliance (Mitchell, 1992). [6]

3.3 Rules codify preexisting interests

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[5] H.Morgenthau makes the observation that "the great majority of the rules of international law are generally observed by all nations without actual compulsion" (Morgenthau, 1978). O.Young similarly .claims that "states generally comply with the rights and rules of international institutions" (Young, 1989).

[6] This behavior is facilitated by virtual non-existence of authoritative dispute settlement mechanisms at the international level.

The most basic principle of international law is that "each nation is bound only by those rules of international law to which it has consented". Thus, most treaty rules will include only those prescriptions or proscriptions in which states have independent interest in taking or refraining from (Morgenthau, 1978). In fact, states seldom have to choose between pursuing self-interest and non-complying. Most agreements elicit high compliance precisely because they merely codify the preexisting self-interests of the parties (Gilpin, 1981). In some cases, the agreement itself may facilitate actions a government seeks to adopt by providing international legitimacy, which increases domestic political support for a policy the government hoped to implement in any event (Chayes and Chayes, 1993; Mitchell, 1992).

At the same time, since almost any treaty is necessarily a compromise, the outcome of the negotiating process may fall short of the ideal from the point of view of the particular interests of any state. However, if the agreement is well designed, compliance problems and enforcement issues are likely to be manageable. If issues of non-compliance and enforcement are endemic, the real problem is likely to be that the original bargain did not adequately reflect the interests of those who would be living under it, rather than mere disobedience (Chayes and Chayes, 1993).

3.4 Rules codify existing behavior

A variation of the above is that states may negotiate agreements that proscribe undesirable actions during a period when none has incentives to undertake them, hoping to prevent future economic, political or technological changes producing pressure for such actions. Thus these agreements merely "codify existing behavior" (Keohane, 1984) (e.g., Antarctic Treaty's constraints on mining).

3.5 Sense of obligation

Treaties are acknowledged to be legally binding on the states that ratify them. In common experience, whether as a result of socialization or otherwise, people accept that they are obligated to obey the law. So it is with states. It is often said that the fundamental norm of international law is *pacta sunt servanda* (treaties are to be obeyed). In many countries of the world, they became a part of the law of the land. Thus, a provision contained in an agreement to which a state has formally assented entails a legal obligation to obey and is presumptively a guide to action (Chayes and Chayes, 1993).

According to Oran Young, "'obligation' encompasses incentives to comply with behavioral prescriptions which stem from a general sense of duty which do not rest on explicit calculations of costs and benefits... Feelings of obligation often play a significant role in compliance choices" (Young, 1979:23).

The strongest circumstantial evidence for the sense of an obligation to comply with treaties is the care that some states take in negotiating and entering into them. No doubt, it reflects the desire to limit the states's own commitments as much as to make the evasion by others more difficult. In either case, the enterprise makes sense only on the assumption that, as a general rule, states acknowledge an obligation to comply with agreements they have signed (Chayes and Chayes, 1993).

3.6 Compliance is habitual (efficient)

Several factors may lead states to avoid continuously recalculating whether compliance proves to be in their interest. Especially if the costs of compliance are low and if compliance has been initiated, the exigencies of bounded rationality and bureaucratic procedures may make compliance habitual. Governments create standard operating procedures to reduce the frequency with which they must make decisions of any sort (Allison, 1971). Considerable policy continuity is dictated by efficiency considerations. In areas of activity covered by treaty obligations, the alternative to the recalculation of interests is to follow the established rule. From the point of view of organization theory, the adoption of a treaty, like the enactment of any other law, establishes an authoritative rule system. "Rules constitute an essential feature of bureaucracies and ... routinized compliance with rules is a deeply ingrained norm among bureaucrats". Compliance is the normal organizational presumption (Chayes and Chayes, 1993; Young, 1979).

The fact that the law is observed by obligation and habit means that many obligations will be honored even when they are ill-conceived. By some measures, badly designed agreements are inefective because they do not reflect underlying interests. But from an environmental perspective, and the perspective implied in this project, they may be highly effective. Some agreements may push obligations into the future or to less powerful groups, making the cost of obligations less transparent. The Montreal Protocol may be one such agreement. Typically, agreements on complex and uncertain issues are marked by an inability to forecast the magnitude and distribution of costs of action, thus making it possible that real costs will be unacceptable. Despite costs and inconvenience that might not be acceptable if transparent at the outset, habit and obligation may induce compliance. It is crucial to examine these and other 'hard cases' to demonstrate the role of rules and standards in shaping behavior (see e.g. Young, 1992).

3.7 Linkages to other issues

Because of the growing interdependence of states and a sense of "community" among a relatively stable set of actors, there are strong incentives to comply with international agreements - even where it may not be in a state's immediate interest to do so - because the negative consequences of non-compliance may be felt in other issues (Keohane and Nye, 1977/1989). Because issues are interlinked, states have a variety of mechanisms outside the environmental treaty framework to ensure compliance; formal enforcement may not be needed where economic and political interdependencies can be used to ensure compliance through "diffuse reciprocity" extending over time and across other issues (Keohane, 1986). Cases of "high" politics such as nuclear arms control, where national security is the issue, may be characterized by lower interdependence and thus a lower assurance of compliance (Ausubel and Victor, 1992).

4. Causes of non-compliance

Despite the many incentives for voluntary compliance outlined above, treaty signatures are not always followed by compliance with treaty rules.[7] Nations frequently violate even

[7] As is noted by Keohane (1984), "The extent of international compliance should not be overstated".

relatively low-cost reporting requirements, and quite often ignore more substantive provisions (see, e.g., GAO, 1992). What factors seem to determine the states' preference for non-compliance?

4.1 Deliberate violations

A state may deliberately prefer non-compliance because the benefits of compliance simply do not outweigh its costs (provided that coercive efforts are absent).[8] There may be several reasons for this. First, some actors, being classical free-riders, may consciously sign treaties to garner the political benefits of membership without any sincere intention to comply as well as seeking to avoid the direct costs of compliance. Other states may feel strong domestic and international pressures to sign an agreement independent of its compliance costs. States may also view most, but not all, rules in a treaty as in their interests, leading them to sign, with the intention of complying with most but not all rules. Further, the state may value compliance by itself and by others and even deem that the benefits of compliance outweigh its costs, but may nonetheless prefer non-compliance because of the domestic list of priorities. Other problems may simply prove more pressing. Finally, certain states may simply not view compliance with treaty rules as having benefits. A state may acknowledge that certain actions would improve the environment without placing any value on that improvement. A consensus of values need not exist (Mitchell, 1992).

Whether deliberate non-compliance is common or "exceptional" behavior remains an empirical question . However, as Professor Louis Henkin tells us in *How Nations Behave*, despite some conspicuous departures, "almost all nations observe almost all principles of international law and almost all of their obligations almost all the time" (Henkin, 1979). Echoing him, Chayes and Chayes (1993:188) argue that "only infrequently does a treaty violation fall into the category of a wilful flouting of legal obligation".

4.2 Lack of domestic concern

Governmental concern should be sufficiently high to prompt states to devote resources to solving the problem, even if they are scarce. Since, typically, concern is generated by political action within societies, it is most likely to be insufficient without active networks of individuals and groups who are linked to the political system, point out environmental hazards and demand action on them (Haas et al., 1993). The key condition for this mechanism is the adequate transparency of government policy and behavior.

4.3 National incapacity

4.3.1 Financial (material) incapacity

Even actors who perceive compliance as beneficial may fail to comply because the

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[8] The cost-benefit approach to decision-making on whether to violate the rules is the core of the economic analysis of compliance applied primarily at domestic level. Much of this can be traced to the works of Becker (1968) and Stigler (1970) on optimum enforcement of laws and the deterrent value of various sanctions such as fines and imprisonment. These have been extended to the case of environmental pollution by Downing & Watson (1974) and Storey and McCabe (1980), and synthesized by Russell et al.(1986, 1990).

necessary resources are lacking. The fact that compliance benefits are perceived as exceeding its costs does not necessarily mean that those costs can be absorbed. In economic terms, willingness to pay cannot equate with ability to pay. Non-compliance can be due to an inability, rather than an unwillingness, to comply (Young, 1992). This source of non-compliance is highlighted in the mechanisms established in several recent environmental accords on the financing of compliance (see Section II, para 1.3.1 below).

4.3.2 Administrative (regulatory) incapacity

To make the domestic adjustments necessary for compliance with international norms and rules, states must also possess the political and administrative capacity. Leaders of weakly institutionalized states may genuinely want to conform to international norms and principles, but may lack the political legitimacy, or the loyalty of competent and honest bureaucracies necessary to develop and implement domestic initiatives. An international regime creates an external demand for effective domestic action, and international coalitions, including NGOs, may prompt increasing internal demand; but severe constraints may exist on the ability of the state to supply effective policy (Haas et al., 1993).

By political capacity, Haas, Keohane and Levy (1993) refer not only to the ability of governments to make and enforce laws and regulations, but also to the broader ability of actors in civil society to play an effective role in policy-making and implementation. Civil society must be capable of generating discussion and criticism of governmental action and inaction, and of participating and in carrying out policies that respond to environmental problems. Typically, developing countries and the governments of Eastern Europe have lacked adequate capacity on both the governmental and societal dimensions - governments have often been unable either to understand or to regulate the impact of their citizens and industrial enterprises on the environment; and groups within civil society that could have been the source of information and criticism either did not exist or have been repressed.

The lack of administrative capacity is particularly acute with regard to environmental treaty compliance, since it requires that a government successfully alters the actions of myriad sub-national actors. A government may lack either the informational or regulatory infrastructure necessary to successfully elicit compliance.[9] Even developed Western states have not been able to construct such systems with the confidence that they will achieve the desired objectives. Excessive task duplication, unclear sharing of responsibilities, as well as inter-agency rivalry and lack of exchange of information are common impediments to giving full effect to the rules of an international regime (Hildebrand, 1992).[10] While these

[9] Inefficiency of domestic administrative structures is particularly pronounced if the international regime is not supported by an enforcement agency that has the power and the means to interfere directly in the member states' internal implementation process (Hildebrand, 1992).

[10] As discussed in detail by Weale, constitutional and administrative limitations in governmental structures result in the design of administrative institutions that do not match the holistic nature of environmental problems. The problems of inter-departmental coordination and inter-sectoral collaboration increase as environmental policy moves from mitigating the effects of pollution to controlling its sources. Since the causes of pollution are found typically in production and consumption patterns, which fall under the responsibility of non-environmental departments, environment ministries can initiate action, but they typically have to collaborate extensively if they are to get beyond the stage of exhortation (Weale 1992:52-53).

problems may be reduced to being simply variants of financial incapacity problems, cultural and social contexts may also make compliance significantly more difficult to elicit from the citizenry of one country than another (Mitchell, 1992; Chayes and Chayes, 1993).

The general characteristics of a state's administrative structure and authority held by the government also may affect a state's capacity to comply with the rules of an international environmental regime. In broad measure, a strong state ability to implement agreements will be greater than that of a weak one (Krasner, 1978). Arguably, an indicator of the strong vs. weak state may be the degree of centralization. However, a highly centralized state model has its own shortcomings from the standpoint of compliance. One of them is a limited ability to track down the performance of small private actors scattered throughout the country. In addition, under this model, it is difficult for local concerns to be put on the agenda of the central government and to be accounted for during the regime preparation phase. Unsatisfactory local compliance can, therefore, reflect the fact that regime's rules are not always relevant to a given local or regional situation (Hildebrand, 1992). In addition, centralized states are ineffective if the central bureaucracy is ineffective - decentralized systems are bound to be more variable, but on balance, the opportunities for experimentation and learning in diverse settings may promote overall effectiveness, even though some localities could still exhibit poor compliance.

Even in highly decentralized systems, implementation and enforcement can be made effective if those systems are tuned to the decentralized nature of the state. For example, compliance may be enhanced where incentives exist for individuals and groups concerned to enforce actions through the courts. As is shown by Naysnerski and Tietenberg (1992), private enforcement offers a number of advantages over a public one, particularly when public enforcement agencies seem reluctant to to enforce pollution violations committed by public facilities. Private enforcers can complement public enforcers, producing greater compliance and, quite possibly, a more responsible public sector. In addition, courts can be an important mechanism for integrating locally different laws and other additional venues for activists to press their cases (see Burley and Walter, 1993).[11]

As the above discussion suggests, it is not obvious which structure of government is more effective from the standpoint of compliance. The key issue here is probably not the administrative structure of a state, but rather the extent to which authority and information are exchanged between the local and the international levels. Where connections are tight, multiple levels of governance can be highly effective; where connections are loose, the effectiveness can be close to nil. This suggests that we look more closely at the types of connections, which may take form of bureaucratic rules, procedures for audits and oversights, incentives to private actors, etc., rather than just the state structure as an independent variable affecting compliance levels.

4.4 Inadvertence

[11] This can both increase and decrease compliance, depending on the court, although multiple points of access to justice may on balance favor those who seek to ban or to limit the polluting activities, because risk averse firms will have more risks of legal entanglement to fear.

States may take actions sincerely intended and expected to achieve compliance but nonetheless failing to meet standards established in an agreement. Environmental rules establishing aggregate national targets for pollution reduction may pose particular problems in this regard. Even developed states may implement domestic policies in order to alter the behavior of sub-national actors, but fail to achieve their intended results. Moreover, programs that succeed in bringing one country into compliance may fail in another. Whether due to misguided policy or to the inherent uncertainties in outcomes of certain policies, the multi-level nature of environmental compliance may make compliance due to inadvertence especially common (see Mitchell, 1992).

Where systems are relatively simple and predictable, inadvertence may be rare. However, in large complex systems, like the one which is dealt with in this project, the opportunities of (sometimes catastrophic) unintentional consequences increase significantly (see Perrow, 1984).

4.5 Ambiguity of treaty language

For various reasons, international negotiations quite frequently produce a zone of ambiguity in a treaty, within which it is difficult to say, with precision, what is permitted and what is forbidden. This may happen, either because treaty drafters do not foresee many of the potential applications, or because the political consensus does not support more precise formulations of obligations at this moment. In either case, there is often a considerable range within which parties may adopt differing positions as to the meaning of the obligation, thus raising the issue of compliance, with one party charging another with violation.

However, compulsory means of authoritative dispute resolution - by adjudication or otherwise - are not generally available at the international level.[12] In this case (and even sometimes when there is an authoritative arbiter), discourse among the parties, often within hearing of a wider public audience, is an important way to clarify the meaning of the rules (Chayes and Chayes 1993).[13]

4.6 Impact of the nature of the problem/industry on compliance

The nature of regulated industry and the environmental problem impose constraints on the types of monitoring and enforcement processes available. In many problems, such as the preservation of wetlands or world heritage sites, and in long-range transboundary air pollution, strategies to improve compliance must work through a two-level enforcement process, wherein concerned states sanction reluctant ones to induce them to enforce treaty commitments against their own nationals. As is demonstrated by Mitchell (1992), more significant obstacles to effective enforcement arise in such cases, as compared to more concentrated and internationalized industries, such as world tanker operation and construc-

[12] In fact, governments have been extremely reluctant to accept compulsory third-party adjudication: in the majority of global agreements concluded since the 1970s, each party can prevent a case from being taken to arbitration or to the International Court of Justice, since submission of disputes to third-party adjudication usually requires "common agreement" (Sand, 1990).

[13] Perhaps a more usual way of operating in a zone of ambiguity is to design the activity to comply with the letter of the obligation, leaving others to argue about the spirit (Chayes and Chayes 1993).

tion. The nature of the latter industries, while making organized opposition to the regulation of oil pollution from vessels more likely, facilitates, nevertheless, effective exercise of practical and legal jurisdiction by leading states over industrial actors, even those nominally based in other states. Several other environmental problems exhibit similar features of concentration or internationalization: e.g., the Montreal Protocol, CITES, and the International Tropical Timber Agreement all regulate activities that provide opportunities for directly sanctioning the actors responsible.

II FACTORS AFFECTING VARIATION IN COMPLIANCE, AND IMPLICATIONS ON HOW TO IMPROVE IT

1 Factors endogenous to the regime

1.1 Primary rules

Primary treaty rules vary in clarity and specificity. Increasing specificity increases compliance in at least two ways. First, for actors predisposed to comply, specific rules make compliance easier by reducing the difficulty of deciding how to comply and the uncertainty about the consequences of such action. Less ambiguous treaty rules (see para 4.5 above) help actors who want to comply by clarifying what they need to do. Second, for actors predisposed to non-compliance, precise treaty language removes the excuse of inadvertence and misinterpretation from actors when they must account for non-compliance (Fisher, 1981; Mitchell, 1992).

In addition, while transparency's main contribution to compliance is through improving compliance information and non-compliance response systems, it also can facilitate compliance by remedying non-compliance that arises due to uncertainty regarding the actions of others. By regulating more transparent actions, treaties increase compliance by assuring the actors predisposed to comply that others' non-compliance will be immediately visible and thus permit them to protect their interests by their own withdrawal (Mitchell, 1992).[14]

Several other primary rule features, like the form and nature of regulations, may also be potentially significant with respect to enhancing compliance. For example, in designing environmental regulations, a tradeoff is often made between the stringency of a requirement and the long-term reliability of the control approaches upon which the requirement is based. Given the reluctance of regulated actors to invest in new and unproven technology, it makes sense, from an enforcement and compliance point of view, to favor the more reliable option and to rely upon accepted industry practice (Wasserman, 1992).

The resulting compliance levels can also vary depending on the types of standards used in a treaty (technology or performance standards). Technology requirements are simpler to enforce and understand from a compliance standpoint: however, they are eco-

[14] However, there exist cases when transparency is not beneficial to overall environmental effectiveness. For example, selective enforcement must not be transparent, at least not prior to the enforcement action. If the enforcement process is not transparent, all parties will be expecting to be caught violating the rules of the regime; otherwise, transparent enforcement may, in fact, stimulate non-compliance.

nomically inefficient since they do not allow more cost-effective substitutions. Performance standards, while more economically efficient, are enforceable only to the extent that the technology exists to monitor performance reliably (Wasserman, 1992). In the international arena, the importance of types of standards used by a treaty for achieving compliance is vividly demonstrated by the case of the MARPOL Convention, where a move during the 1970s from discharge standards to equipment standards in dealing with vessel-source oil pollution has resulted in a dramatic shift of the treaty effectiveness (M'Gonigle and Zacher, 1979; Mitchell, 1992).

Finally, a differentiation of treaty regulations among parties can also matter for promoting compliance. In asymmetrical regimes, treaty obligations or timetables for complying with treaty objectives are differentiated according to the special circumstances of each party (usually economic capacity or geographic position). When different obligations are translated into different national abatement targets - equitable rather than equal for each party (Sand, 1990) - the chances for compliance, even among laggards, are likely to increase (Broadus et al., 1993).

1.2 Compliance information system

The most frequently discussed means to increase compliance is to increase transparency (see Young, 1992, Chayes and Chayes, 1991a). Transparency is essential to the reciprocity that forms the basis for compliance, when states are motivated by self-interest or are coerced into compliance. Tactics for increasing transparency involve regulating actions that are inherently more transparent under existing detection technologies, and providing for credible self-reporting to a secretariat.[15] Treaty rules and procedures can also authorize independent inspections and surveys, enhance the information flow between parties, increase resources dedicated to monitoring, and finance the development of improved verification technologies.[16] By improving the ability for, and likelihood of detecting violations, transparency fosters all parties' abilities to invoke reciprocity, sanctioning, and inducement strategies (Fisher, 1981; Mitchell, 1992).

Information about poor environmental behavior of a state may also generate external political pressure on it from other states, especially from those directly affected by such behavior. Governments are increasingly concerned about their environmental images, and a poor compliance record renders a state less attractive as a cooperation partner (Stokke, 1992).

1.3 Non-compliance response system

1.3.1 Positive incentives

States can provide positive incentives to encourage compliance (Baldwin, 1985;

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[15] However, the tactic of self-reporting to improve transparency works only when the reports are disseminated and actually submitted. The record on that is mixed and generally negative (see GAO, 1992).

[16] For an excellent and detailed analysis of monitoring, verification, self-reporting and the related problems see Ausubel and Victor (1992).

Young 1979). These involve rewards (or a promise of a reward) conditional upon compliance.[17] As with sanctions, states often use issue linkages to provide such incentives. In particular, side payments and project funding provide useful levers to induce compliance when sanctions are politically difficult to impose, as among allies. Such inducements ease the non-compliance detection problem since they give actors incentives to provide information regarding their actions as a condition for receipt of assistance. International organizations can institute inducement schemes that create larger incentives than would be possible on a bilateral basis by facilitating burden-sharing.

Regime-generated inducements schemes can sometimes play an important role in helping to increase the domestic capacity - either by transferring resources to weak governments in the form of technical or outright aid, or by creating inter-organizational networks that serve as catalysts and facilitators. Most notable current examples include the London Amendments to the Montreal Protocol and the nascent financial mechanism of the Framework Convention on Climate Change. In the former case the cost of abatement actions is co-financed by wealthy countries; in the latter (for now) only the cost of preparing national reports and emissions inventories is sponsored. The World Bank's Global Environmental Facility (GEF), which also manages the Climate Convention's financial mechanism, is another avenue for financing, although the bulk of GEF programs are in the general area of water, biodiversity, ozone and climate, rather than connected directly to questions of compliance with relevant treaties. Many other multilateral and bilateral aid programs also have environmental components, and they can assist in promoting compliance to different degrees (see Sand, 1990).

Regimes can also foster the transfer of information, skills, and expertise necessary for effective domestic programs. Training programs, the provision of policy-relevant information, and research grants can help weaker governments create stronger policy programs. In addition to these direct activities, regimes can build coalitions with development banks and foreign aid agencies in order to channel major quantities of aid toward projects that will help weaker states increase administrative capacity. Institutions can also help build capacity by providing public commitments to a set of norms and principles, which domestic proponents of adjustment measures can use in attempting to overcome their opponents in funding and "turf battles" (Haas et al., 1993).

However, incentives can cause problems. In fact, they can cost more than sanctions because one pays for compliance by actors who would have complied even without such incentives (Schelling, 1960/1980). Disincentives to provide funding pose the major obstacle to successful inducement schemes. While funding programs may prove difficult to enact and small in magnitude, the relevant (and as yet unexplored) question is, however, whether treaty arrangements make funding or compliance more likely than it would be without the treaty,

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[17] Some authors have suggested that inducements - "compliance-oriented strategies" - prove more effective at increasing compliance than do punishments - "sanctions-oriented strategies" (Hawkins, 1984). Nagel (1975) lists eight positive and negative incentives (sanctions) applied on the domestic environmental enforcement front in the decreasing rank order of their effectiveness: (1) discharge taxes or fees, (2) contingent injunctions (involving a court order directed toward a polluter saying that if his pollution is not eliminated or decreased below a certain level, the he will be ordered to cease operating), (3) tax rewards and subsidies, (4) objective civil penalties, (5) publicizing wrongdoers, (6) selective government buying power, (7) fines and jail sentences, and (8) conference persuasion.

and whether these arrangements are successful at increasing compliance (Mitchell, 1992).[18]

1.3.2 Negative sanctions

The traditional remedy for non-compliance has involved deterrence through the threat or use of sanctions. Proponents of sanctions contend that "compliance can be obtained efficiently by making violation unattractive rather than by altering the costs or benefits of compliance" (Young, 1979:20). However, sanctions strategies face major constraints on their effectiveness in domestic (see Hawkins, 1984)[19] and international (see Fisher, 1981) environments: the difficulty of sustaining a coalition to apply sanctions (e.g., Martin, 1992) and the interference in another state's domestic politics, which both contravenes state sovereignty and includes the risk that the state's constituents will become incensed by foreign interference and mobilize against it (Galtung, 1967). These arguments have been extensively debated (e.g., Lenway, 1988) and analyzed (e.g., Hufbauer et al., 1990).

Most sanctions in international environmental agreements are actually used to promote participation in the agreement, rather than as direct enforcement actions (Charnovitz, 1993). As with sanctions in general, their efficacy is highly debated. Typically, the debate is a balance between the apparent effectiveness of sanctions, when applied by a large powerful state against the weaker one, versus the unfair nature of that kind of enforcement mechanism, and the fact that unilateral extra-treaty measures may undermine the legitimacy of the treaty itself. As is noted by Chayes and Chayes (1991a), "the structural realities of international life preclude 'enforcement' by means of sanctions except in very special circumstances".

From the viewpoint of domestic compliance, a particularly interesting element of sanctions in the environmental arena is the notion of what Chayes and Chayes have called "second-level enforcement". They note that "the use of domestic enforcement procedures is likely to be possible in an increasing range of cases, like environmental treaties, where international regimes are aimed ultimately at influencing the private activities rather than state behavior" (Chayes and Chayes, 1991b). While governments may be unwilling to authorize sanctions by one government against another, they may be willing to authorize sanctioning of private individuals and corporations under their control. A further step would be to open national administrative and, perhaps, judicial processes to participation of outside NGOs or even international institutions, when the affected state is a party to a relevant treaty (Chayes and Chayes, 1991a).[20] This may skirt the difficult sovereignty issue, but will depend on whether states that seek to induce compliance have jurisdiction over the activity being

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[18] A recent comparative assessment of regional marine pollution control programs has concluded that the effectiveness of such a commonly used international funding mechanism as a regional trust fund is not clear from the observed experience and must be carefully questioned (Broadus et al., 1993).

[19] For a detailed analysis of the application of sanctions in the domestic environmental enforcement front see also Russell et al. (1986), Richardson et al. (1982), Wasserman (1992), Segerson and Tietenberg (1992), and Cohen (1992).

[20] A path-breaking move of this kind is the Nordic Environmental Protection Convention, which permits each of the three Scandinavian countries to appear in the administrative or judicial processes of the others on matters dealing with the environment. In Europe, the expanding applicability of European Community law offers many opportunities to press environmental claims in courts, even in those states where domestic law and local procedure are not favorable (see e.g., Haig, 1992).

regulated. Treaties structured to take advantage of such opportunities to facilitate the focusing of sanctions and incentives on individual actors will provide another means of increasing compliance (Mitchell, 1992).[21]

1.4 Role of regimes in increasing domestic concern

International regimes can affect the degree of domestic compliance with treaty norms and rules by boosting domestic concern, and thus make it possible to adjust national policies in accord with institutionally expressed norms and principles.

In addition to offering rewards or punishments, regimes can also generate new information (by normative pronouncements accompanied by collaborative scientific reviews) that alters the states' (particularly laggards') perception of the consequences of their actions.[22] Sometimes such a process of redefinition of interest occurs through the interaction of institutional activity and networks of scientists and experts known as epistemic communities (Haas, 1990).

Treaty processes can also encourage processes of social learning by which the governments and other actors may alter their values and behavior. Modern treaty-making can be seen as a creative enterprise, through which the parties not only weigh the benefits and burdens of commitment, but explore, redefine and sometimes discover their interests in general, and particularly longer range national interests and values. This, if adequately reflected in the treaty, will help to increase environmental concern and induce compliance (Keohane, 1984; Chayes and Chayes, 1993).

Institutions can also heighten state concern by magnifying public pressure on recalcitrant states, e.g., by fostering competition among governments to be (or to seem) more pro-environment. Institutions can shape domestic policy by providing information that is useful to particular domestic factions, by helping bureaucracies fighting "turf battles", and by generating salient public commitments around which political actors can focus domestic debates. International institutions can also interact with NGOs and environmental movements to increase public concern, either through cooperative programs or as a result of public criticism of the international institutions and national policies by NGOs. They play an active role, using information gained at formal international meetings, as well as public statements made by government officials, to embarrass governments and criticize national policies.[23]

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[21] Szasz (1991) argues that on the global level (but not necessarily on the level of, for example, the EC) national supervision is still preferable to an international one. First, the world community has practically no experience in the governance of individual enterprises (with, perhaps, to some extent the IAEA), and thus it is difficult even to speculate about the sort of institutions that would be required for this purpose. Second, such detailed governance would require a degree of intrusion into domestic affairs that few countries would be willing to tolerate.

[22] Compliance becomes more attractive if new information or scientific knowledge increases the perceived benefits of compliance or the costs of environmental damage. New information about the local costs of pollution can increase domestic political pressure for compliance (Mitchell, 1992).

[23] NGOs, however, quite frequently face serious difficulties in effectively responding to non-compliance and non-enforcement. They often lack the resources and the legal authority to use those resources in ways that would pose credible threats to governments. While national governments are not the only actors on the international scene, they continue to dominate in the legitimate use of force and coercion. Even in issue areas

Under these conditions, international institutions are part of a complex network of governments, international institutions, nonprofit NGOs, the mass media, and industry groups, in which public pressure may overwhelm industry and government resistance (Haas et al., 1993).

International institutions can focus normative pressure on states as well. International scholars have long noted the power of norms and principles in shaping behavior of the states (Kratochwil, 1989; Nadelman, 1990), although it has been difficult to track accurately when and how such norms develop. As has been shown above (para 3.5), high degrees of compliance with most international agreements may reflect the operation of such norms and principles rather than the fear of formal enforcement (Ausubel and Victor, 1992). When international principles and norms have been agreed upon, they may acquire a certain legitimacy and then be regarded as premises, or as intrinsically valuable, rather than as contestable reflections of interest-based compromises.

Regimes can also increase concern by linking issues. A laggard state may have little concern about an environmental problem, but if a regime helps link the environmental issue to other issues that are of concern, then laggards may reevaluate their reluctance. Such linkage is direct in the case of material incentives, such as financial aid or technology transfer, but is present also in a less direct form when governments exert diplomatic pressure within the context of an environmental institution, raising the prospect that life may be made difficult for the laggard in other areas if the laggard does not come around. Regimes help increase such diplomatic pressure, both by making a laggard's opposition public, and by creating the opportunity to form interstate coalitions explicitly designed to put pressure on laggards.

International regimes are not always successful in enhancing concern about environmental problems; they are typically weak unless other forces - notably, domestic environmental movements - create conditions for their effective operation (Haas et al., 1993).

2 Factors exogenous to the treaty

2.1 Economic and technology changes

Several authors (Gilpin, 1981; Strange, 1983) argue that economic and technology changes may cause national governments to change their cost/benefit calculus as to which rules or norms of behavior should be reinforced and observed and which should be disregarded and changed. These changes, which arise exogenously to the regime, may either

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where NGOs have taken action, such as whaling and debt-for-nature swaps, the actions tend to address only a small fraction of the problem (Mitchell, 1992). Overall, NGOs have been successful in influencing global issues when those issues involve funding and when they can find allies within the structures of their own countries to bring pressure to bear on carefully chosen objectives. But they have been less successful on issues that do not hinge on donor-country funding (Porter and Brown, 1991).

increase or decrease incentives to comply with treaty rules.[24] The changes that make it easier or cheaper to comply (e.g., developing lower cost means to comply with existing rules) may increase compliance by both "leaders" and "laggards", dominant states and weaker states. At the same time, changes in the general economic situation, like domestic recession, may detrimentally affect compliance e.g., by drastically reducing the amount of funds available for environmental protection. As the current experience of FSU and Eastern Europe suggests, systemic transformation processes can also virtually undermine national financial and administrative capacity to combat pressing environmental problems and to comply with international commitments.

Changes of this type can also increase compliance by affecting a dominant state's power and interests in enforcing collective aims. For example, improved verification capabilities controlled by a few countries (e.g., satellite surveillance) would help to monitor activities, making it possible to impose sanctions more swiftly, and thereby increase compliance (Mitchell, 1992). The release of technical capabilities devoted to national security may greatly improve public awareness about environmental changes, ranging from deforestation to extent of snow cover and ice thickness, and thereby bolster domestic environmental concern (Ausubel and Victor, 1992). Finally, more energetic international actions for environmental protection are frequently facilitated by the availability of technological options that have made such objectives appear feasible (Haas et al., 1993). For example, the development of new monitoring technology (e.g., for measuring transboundary marine or non-point source pollution) may allow for verification and enforcement of agreements that otherwise would not have been possible.

2.2 Domestic political changes

Domestic political factors may play important roles in determining how a state assesses its interests. Domestic politics may constrain opportunities to violate a rule, and even to retaliate to another state's violations. International agreements thereby generate an inertia that supports compliance once it has begun. Fisher argues that treaties could take advantage of the political and bureaucratic constraints on compliance by requiring implementation in national law - either in the form of legal harmonization, or more ambitiously, by inducing member states to accept that certain international regulations made by a given institution automatically become domestic legislation (Fisher, 1981:237).

Thus, treaties can influence domestic perceptions of self-interest rather than merely reflect them. Social and political factors may create changes in the bargaining positions of domestic bureaucratic and political groups which favor compliance. While treaties allow actors to make stronger cases for constraint than would be possible in the absence of such obligations, whether compliance continues may depend on who is in office. These changes may increase overall compliance if they reflect transnational social shifts across countries that include greater concern regarding the environmental issue (Mitchell, 1992).

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[24] However, as noted by Haas et al. (1993), technological change is in part autonomous, and in part a function of regime influences. Technology can be both a contributing cause and a consequence of institutional effectiveness.

Other domestic strategies and political changes may also affect the ability of states to comply with international agreements. One example is the domestic "tying of hands", when the government succeeds in getting the relevant domestic interests firmly established, and later following these interests, pretending not to be able to overcome domestic opposition to a treaty (Putnam, 1988; Schelling, 1960/1980). Poor national modeling and forecasting of the consequences of a treaty (as e.g., in FCCC, where the emissions and costs models are totally inadequate for policy planning) can be subsequently employed as an "excuse" for poor compliance. Finally, unanticipated events, like domestic political crises, can completely change the patterns of compliance with certain commitments.

2.3 Critical role of domestic pressure

As is noted by Haas et al. (1993), most important sources of variation in compliance levels do not derive from variations in formal rules, but from variations in the degree of political pressure brought to bear on the issue by governments responding to domestic political agitation. Some international movement is possible simply from publicity generated by scientists and NGOs, and significant improvement in international policies has followed the participation of experts and scientists in influential international organizations and in government agencies of influential governments. Yet, there is discernibly more movement once most governments are subject to domestic pressure and there is a push from strong governments. If there is one key variable accounting for policy change, it is the degree of domestic environmentalist pressure in major industrialized democracies, not the decision-making rules of the relevant international institution. (Haas et al., 1993:14).[25]

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[25] This judgement is in accord with the conclusions of the other recent study on states' compliance (Chayes and Chayes, 1991b).

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