

Working Paper

Regime, the State and Society:
Analyzing the Implementation
of International Environmental
Commitments

*Steinar Andresen,
Jon Birger Skjærseth and Jørgen Wettestad*

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June 1995



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Working Papers are interim reports on work of the International Institute for Applied Systems Analysis and have received only limited review. Views or opinions expressed herein do not necessarily represent those of the Institute or of its National Member Organizations.



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Preface

Hundreds or even thousands of international legal instruments on "the environment" are legally in force. What happens to international environmental agreements once they are signed, and how does the implementation of 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 many methods.

In this paper, Steinar Andresen, Jon Birger Skjørseth, and Jørgen Wettestad examine the relationship between international regimes, states, and societies. The interactions between these levels moderate the influence of international agreements and rules on behavior: they help determine when international agreements are effective. The paper offers one major context for studying the domestic implementation of international agreements, and for developing theories that explain how international agreements influence down to the local level. The authors review and develop numerous hypotheses about the factors that explain successful domestic implementation, and the balance of the roles of the state and non-state actors (e.g. NGOs). The main perspective they propose is one that concentrates on "access" to and "participation" in the policy-making and implementation process as a fruitful way to unravel the main factors that explain effectiveness, as well as the major policy tools available to improve effectiveness of international environmental agreements.

The authors also review literature in important fields: domestic public policy implementation, international regimes, and the concept of "compliance".

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:

- o Steinar Andresen, Jon Birger Skjærseth, and Jørgen Wettestad, 1995, "Regime, the State and Society--Analysing the Implementation of International Environmental Commitments".
- o Vladimir Kotov, 1994, "Implementation and Effectiveness of International Environmental Regimes During the Process of Economic Transformation in Russia".
- o Elena Nikitina, 1995, "National Implementation of International Environmental Commitments: a Review of Soviet Literature".
- o Alexei Roginko, 1994, "Domestic Compliance with International Environmental Agreements: a Review of Current Literature".

Research on international and transnational processes of implementation:

- o 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".
- o David G. Victor, John Lanchbery and Owen Greene, 1994, "An Empirical Study of Review Mechanisms: Report on Work in Progress".
- o David G. Victor with Anna Korula, 1994, "What Is an International Environmental Agreement?"
- o 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:

- o 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:

- o 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.

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BACKGROUND

As part of the IIASA project on "Implementation and Effectiveness of International Environmental Commitments (IEC)," the authors of the present paper, a group of researchers at the Fridtjof Nansen Institute (FNI) in Lysaker, Norway, were asked to examine domestic implementation of international environmental commitments in the OECD. We were to coordinate our research with a group of Russian scientists and cover the countries currently undergoing economic transition (Eastern Europe and the former Soviet Union). At the FNI we have worked for quite some time on the effectiveness of international resource and environmental agreements. However, like most students of international affairs, we had not looked in any detail at the domestic level, either in terms of implementation or effectiveness. Writing a thinkpiece was therefore seen as an essential step in order to map both past and present research in the field, as well as to carve out our own niche within the IEC project.¹

Work on this manuscript began in January 1994. The first draft was completed for presentation and discussion at the IEC project meeting in Washington at the end of March. We worked closely with our Russian colleagues throughout this early stage. After thorough discussions we agreed that before we engaged in more direct cooperation, both teams should first carve out their own territories. As a result, we embarked on producing two separate and fairly comprehensive thinkpieces within what was then known as Module 1.

Our original intention was to include in the paper questions of methodology, our more specific "niche," and case selection. However, after having worked further on these issues in the summer and fall of 1994, we decided to split them up. The main reason was that we needed to do some preliminary empirical work before we were ready to decide on the more precise focus as well as the choice of cases. This approach was endorsed at the IEC project meeting at IIASA in August 1994.

Thus the thinkpiece ended up being less ambitious than originally planned. The final version is essentially a trimmed-down and simplified version of the March 1994 draft. Its main purpose is simply to present a general background and framework for our subsequent research. We stress that this is a thinkpiece, no more and no less, and should be read as such. The work we have since done in narrowing our angle to one

1 A number of thinkpieces have been produced by the Russian team in 1994 and 1995.

of access and participation, case selection and empirical work will be published later in 1995.

As mentioned, none of the authors of this report was an expert on domestic politics. But fortunately one of us, Jon Birger Skjærseth, received a grant in 1993 from the Norwegian Research Council to study domestic implementation of international environmental agreements. Without his previous work and his contribution to our effort, we would not have been able to write and finish the thinkpiece within the above-mentioned time limits. We have also received very useful comments from the leader of the IEC project, David Victor, from our colleague at the FNI Olav Schram Stokke, from Detlef Sprinz, from our Russian colleagues Elena Nikitina, Alexei Roginko and Vladimir Kotov, and from the members of the project's Advisory Committee, as well as from our colleagues within the project. However, the authors are solely responsible for the shortcomings of this research report.

Steinar Andresen, Jon Birger Skjærseth, Jørgen Wettestad

PART 1. INTRODUCTION AND ANALYTICAL PERSPECTIVE

International environmental cooperation expanded strongly in the two decades following the UN Conference on the Human Environment (UNCHE), held in Stockholm in 1972. In this period students of international affairs were naturally mostly preoccupied with conditions for the establishment of such cooperation. Beginning with the "greening" of public opinion in the mid-1980s, many of these agreements were given teeth; it was no longer just a question of loose cooperation and declaratory statements, as more and stricter obligations were placed on the parties to the agreements. Consequently, greater emphasis was laid on decision effectiveness and the substantive content of the decisions. As international environmental cooperation has continued to increase both in scope and strength, and many international agreements have graduated from "adolescence" to adulthood, attention more recently has turned to the functioning, or effectiveness, of such cooperation. Thus, just as the 1970s and most of the 1980s saw the establishment and functioning of environmental cooperation, the 1990s will be the decade for the study of how these agreements are implemented and how effective they are.

To better understand the complex issues of effectiveness and implementation, it is not enough to focus on the international level. There is growing acceptance that what happens at the domestic level is probably more important in explaining the course of development and effects of international commitments. Thus the interlinkages between society, the state and international regimes need to be studied.

A number of studies and large international research projects have now been launched to shed light on these questions. As few results have yet emerged from these large-scale efforts, the field is still in its infancy.² In working on the present "thinkpiece" we have read some of the relevant research designs as well as other current literature. As this thinkpiece is a combination of our own thoughts and those of others, we start out broadly in Part 2 to put our own effort in a historical as well as comparative and theoretical perspective by examining some of the important contributions made by other scholars. Part 2 provides a short description of the development of the field along two key dimensions: 1) the development of the study of implementation (and some related approaches); and 2) the development of the

2 At a workshop held in Barcelona in September 1994, members of most of the international research projects dealing with this issue, all together 11 projects, presented and discussed their work. See the proceedings from the "Barcelona Workshop" (1994). For an analysis of this workshop, see Young and von Moltke (1994).

study of international environmental regimes, with the main emphasis on effectiveness. The third section of Part 2 gives a brief and very simplified overview of the development from compliance to implementation in the study of international environmental commitments (IECs).

The aim of Part 3 is to offer our own contribution to the study of the implementation of IECs. First we discuss the question on how to study implementation effectiveness (dependent variable). Thereafter we discuss how implementation may be explained (independent variables), before concluding in Part 4 with a brief summary and exploring some ideas for the road ahead.

The General Analytical Perspective

We take as our point of departure the three key concepts relating to three key arenas on three different levels: 1) international regime; 2) the state and 3) society. The conceptual model is as follows:

REGIME

STATE

SOCIETY

We assume that the interactions between institutions and actors at these three levels mutually influence each other when IECs are implemented. In a comparative perspective, we also assume that such relationships will vary between different countries and regimes. Thus, after discussing and defining the dependent variable, how to study and measure implementation effectiveness (see first section of Part 3), in principle all six combinations are relevant when trying to explain implementation:

.regime-state

.state-regime

.state-society

.society-state

.regime-society

.society-regime

In the subsequent discussion we focus mainly on three of these: the regime-state, the state-society and the society-state relationships. Although interesting explanatory

factors may also be found within the other three dimensions, it will be shown that some of the potentially most powerful explanatory factors can be found here, especially within the state-society and society-state relationships.

How and through which mechanisms can international regimes affect domestic implementation and compliance? This perspective focuses on regime qualities and how they may affect state performance (regime-state). The basic question here is whether and why there are variations between regimes as to implementation and compliance; in other words, are there "high-level" implementation regimes and "low-level" implementation regimes, and if so, why?

At this level we are basically operating within the traditional compliance perspective, treating the state as a unitary actor. Although this relationship plays an important role in explaining the whole implementation chain, we expect to find the most powerful explanatory factors at the domestic level, by studying both the interaction between regime-state and state-society. The basic question here is whether and why there are variations as to the level of implementation within regimes; in other words, are there high-level and low-level implementation countries, and if so, why?

We suggest that there are three main explanatory perspectives related to this question. The first is the *political will* to implement. A crucial question here is to what extent the commitment actually reflects the material interests of the states and/or whether the perception of interests changes after an agreement has been reached. We assume that variations along this dimension may activate a number of interesting state strategies versus the regime (state-regime). In particular, we suspect that a number of deliberate "cover-up" strategies are utilized, spanning from selection of unique baseline-years, via data manipulation to avoidance. The relationship between state and regime focusing on the interests of states is the traditional approach in compliance studies and is therefore only briefly touched upon in this thinkpiece.

The second perspective is the state's *ability* to implement. Here we assume that there is a political will to implement on the part of central decision-makers. The state attempts to further national interests through implementing national programs that are in line with the perception of those interests. Success depends upon: a) whether the state has "control" over society and its own administrative machinery (state-society); and b) whether society supports or opposes state policies, and whether societal actors are able to influence the state effectively (society-state).

While the society-state relationships can be studied in line with something like a bottom-up approach, state-society relationships are most often studied from a more

traditional top-down perspective. The goal is to study how different arenas and actors meet in order to explain and compare specific implementation processes.

A third explanation concerns factors *external* to the intentional process of implementation, meaning that coincidental or unforeseen developments, such as technological and economic development, may make implementation easier or more difficult than originally expected. Such factors may be quite decisive for the outcome of the implementation process, but as they cannot be ascribed to actual implementation policy, these aspects are only briefly discussed in the section discussing the dependent variable.³

If the aim is to explain as much as possible of the implementation process, in principle domestic implementation should be studied and explained all the way from top to bottom and vice versa. However, the relationship may not be as neat as outlined here. For example, the causal mechanism may go directly from the regime to society actors. This is what Chayes and Chayes (1993) term "second-level" enforcement, meaning that the regime seeks to regulate private actors directly rather than states (regime-society). Conversely, a societal group may bypass the state and seek to influence international regimes directly (society-regime). We will expect the strength and direction of the different causal mechanisms to vary depending upon issue-specific characteristics of countries and regimes. In particular, the strategies chosen by societal actors are probably sensitive to regime decision rules. If majority decision procedures exist at the international level, effective domestic influence may be insufficient because the state can be outvoted internationally in any case. Moreover, in reality the state deals with the international sphere, its own sphere, the societal sphere and perhaps transnational alliances simultaneously or sequentially.

This short outline of our analytical perspective clearly illustrates the complexities of studying domestic implementation of IECs. For the sake of analytical clarity as well of resource economics we need to narrow our focus when we start doing empirical work. Therefore, explaining as much as possible of the process and outcome of implementation is probably *not* the way to proceed. Rather, we need to carve out a more specific niche to study in more detail. In this round, however, let us begin with a presentation of relevant contributions and lessons learned in the field of implementation, effectiveness and compliance.

3 However, as noted by Haas et al. (1993), factors like technological change in part may be autonomous, but they may also in part be a function of regime influences.

PART 2. THE DEVELOPMENT AND STATUS OF RESEARCH: IMPLEMENTATION, ENVIRONMENTAL REGIMES AND COMPLIANCE

A BRIEF HISTORY OF IMPLEMENTATION RESEARCH

In a 1978 article Majone and Wildavsky wrote, "The study of implementation is becoming a growth industry; tens - perhaps hundreds - of studies are under way at this very moment" (1978:103). In view of the voluminous literature on implementation the ambitions of this section are necessarily quite modest. Nevertheless, based on reviews of other reviews of implementation research and reviews of some classical work in the field, we seek to elucidate the following questions: a) Where and why did this field of study begin, and how has it developed? b) On what kind(s) of theory is it based? c) Where have the most important differences of opinion arisen? d) Which important dependent and independent variables have been used? e) What are the main lessons to be learned from implementation research?

Introduction: Development of Implementation Research

The 1960s in particular, but also the early 1970s, were marked by policy innovation as a result of a decade of prosperity in both the US and Western Europe. Major programs were launched to improve educational opportunities and social security, and to reduce interregional economic disparities. The late 1960s and early 1970s were also the period when environmental protection reached both the international and national agendas. The 1972 UN Conference on the Human Environment represented the international watershed. National environmental ministries were established and large programs to reduce water and air pollution were undertaken. However, it soon became clear that many programs did not work as well as expected. Implementation research arose largely as an effort to understand and explain why, in order to improve the functioning of such programs. The early implementation studies were primarily North American, motivated in part by the perceived failures of Great Society programs. These studies were mainly analyses of single cases.

The most famous "first generation" study is Pressman and Wildavsky's 1973 analysis of the US Federal Government's "unsuccessful" effort to create 3,000 jobs in Oakland. Their study went beyond traditional public administration in at least three ways. First, they focused on the complexity of implementation involving a large number of actors, institutions and levels. Second, they used policy outcome (number of jobs) as the dependent variable. Third, and probably most important, they focused on the

program's causal theory as a critical variable and concluded that the Oakland "failure" was partly a result of an inadequate causal model underlying the program.

The second generation of implementation studies was more analytical and comparative. Conceptual frameworks were designed and specific variables identified to explain variation in degrees of "success" across various programs and countries. Both the first and second generation studies had one thing in common - they were so-called "top-down" approaches that started with a policy decision and focused on goal achievement over time. The third generation implementation research was largely European, in particular German. The "bottom-uppers" came out with a fundamental critique against the "top-downers," arguing that the appropriate starting point should not be a policy decision but rather the actors involved in addressing a policy problem. From the mid 1980s on there have been some efforts to integrate these approaches. However, as far as we can see, the current fourth phase has so far been characterized by less purely implementationary studies. Scholars are focusing more on improving theories of the policy process in general. This tendency can probably in part be seen as a reaction to the lack of theoretical progress and cumulative growth in knowledge within implementation research.

Theoretical Basis and Development

Theories of the policy process: One important stimulus has undoubtedly been David Easton's *System Analysis of Political Life* (1965), which provided a framework for understanding the whole policy process, from demand through policy formulation and implementation, to feedback effects on society. Easton was probably also the first to distinguish between policy output and outcome. This approach has been further refined by writers who have divided the policy process into several stages (agenda setting, formulation, adoption, implementation and evaluation). However, major criticism has been raised because policy scholars have made only a limited contribution to the development of clear, generalizable and empirically verified theories of the policy process. In the 1980s, alternative approaches (mainly partial theories) to the "stage" approach were proposed, such as a) institutional rational choice, focusing more on individual actors and how institutional features may affect behavior; b) policy streams based on the "garbage can" model and focusing on problem streams, policy streams and political streams (see Kingdon 1984); and c) advocacy coalition, focusing on coalitions that organize around core beliefs (see Sabatier 1991:146).

Organizational theory: Since policy implementation normally involves governmental ministries, regulative agencies and target groups, two "types" of organizational theory have been important: a) theories and studies of implementation within organizations; and b) interorganizational policy making. Organizational theory is famous for its conceptual anarchy and there is a great variety of so-called organizational "models" emphasizing different features of organizations and providing different views on the implementation process. Elmore (1978) has for example proposed four distinct models to understand the implementation process: a) The systems management model treats organizations as value-maximizing units and views implementation as an ordered, goal-directed activity; b) the bureaucratic process model emphasizes the roles of discretion and routine in organizational behavior and views implementation as a process of continually controlling discretion and changing routine; c) the organizational development model treats the need of individuals for participation and commitment as paramount, and views implementation as a process in which implementors shape policies and claim them as their own; d) the conflict and bargaining model treats organizations as arenas of conflict, and views implementation as a bargaining process in which the participants converge on temporary solutions but no stable result is ever reached. A study that comes close to this single organizational approach is Dunsire's *Implementation in a Bureaucracy* (1978). The interorganizational tradition is based on the fact that both formulation and implementation of public policy involve different governmental levels and agencies, as well as interactions between public authorities and private organizations. The main focus of this tradition is the scope for coordination and central control. For an account of different perspectives within this tradition, see Hanf and Schrapf (1978) and Rogers and Whetten (1982).

Theories of regulation and enforcement: There are at least two relevant bodies of literature within this tradition. The first of these concerns measures and enforcement, and focuses on such questions as how firms react to different standards, and the optimal balance between the stringency of standards and the level of compliance. For example, Viscusi et al. (1979) have argued that at some point further tightening of a standard may lower overall performance. A particularly interesting book here is Hawkin's *Environment and Enforcement* (1984). There is also relevant literature on policy instruments in general: see, for example, Schneider and Ingram (1990) and Linder and Peters (1989).

The second body of literature is on "regulatory capture." The central question here is whether industry controls regulatory agencies, or vice versa. For example, Diver (1980) sees firms as passive objects of regulation, while Hanf (1982) emphasizes that the firm itself may be a significant active factor in influencing control agencies. The

idea of an active firm is based on the assumption that firms like stable competitive environments and thus at times actively work with regulators to be regulated.

Differing Approaches Within Implementation Research

The principal cleavage has emerged between the "top-downers" and the "bottom-uppers." Mainly related to this divergence in opinion there have been different views related to: a) initial focus; b) identification of actors; c) evaluative criteria; and d) overall focus.

Comparison of the top-down and bottom-up approaches (based on Sabatier 1986):

	Top-down	Bottom-up
Initial Focus	Central decision	Local imp. structure
Identification of actors	From gov't to target groups	From target groups and up
Evaluative criteria	Primarily goal achievement	Anything issue-relevant
Overall focus	System steering	Interaction within networks

Major bottom-up critique against top-down:

- 1) Neglects actors other than central decision-makers;
- 2) Is difficult to use where there is no dominant policy;
- 3) Is likely to ignore or underestimate the strategies used by street-level bureaucrats and target groups to get around central policy;
- 4) The distinction between policy formulation and policy implementation is misleading and/or useless.

Major top-down critique against bottom-up:

- 1) Overemphasizes the ability of the periphery to frustrate the center;
- 2) Takes participation in implementation networks as a given and does not examine how participation is consciously affected;
- 3) Is atheoretical;
- 4) Is not primarily concerned with implementation but rather with understanding actor interaction within a specific policy sector.

The disagreement between top-downers and bottom-uppers has been described as essentially normative in the sense that they disagree on what should constitute "success." A study that is representative of the top-down approach applied to environmental policy is *Implementation and Public Policy* by Mazmanian and Sabatier (1983), which contains two US cases on automotive emissions control and coastal zone conservation treated from that perspective. At the same time, Hanf's *Regulatory Structures: Enforcement as Implementation* (1982) is probably the first test of the bottom-up perspective on comparative pollution control, i.e., air quality control in selected EU countries. He concludes that the approach is fruitful in analyzing regulatory policy.

Most sectors, including education, social security, consumer protection, unemployment and environmental protection, have been the subject of implementation research. Environmental policy as a regulatory policy is regarded as slightly different from the so-called distributive and redistributive issue areas. The aim of pollution control is normally to control harm that arises as a by-product of otherwise legitimate activities within society, while distributive policy aims at altering the distribution of disposable resources. In practice, this implies that distributive policy uses public spending and economic measures to a greater extent than does pollution policy, which relies more on legal instruments.

Variables and Models Used

As we have already seen, the top-down and bottom-up approaches differ concerning evaluative criteria. Within the top-down tradition, the most common indicator used is goal achievement. However, there are also examples of other criteria such as cost/benefit and normative standards. O'Toole (1986) has tried to extract key independent variables from more than 100 implementation studies. He concludes that: 1) roughly half of the published studies identify policy characteristics (especially clarity, specificity and/or flexibility of goals and procedures, and validity of a policy's causal theory) as significant; 2) approximately the same number claim that resources (financial and other) are crucial; 3) other frequently identified categories of variables include implementing-actor, or multiactor structure, number of actors, attitudes and perceptions of implementing personnel, alignment of clientele and timing (including the possibilities for learning among implementers). Two important groups of authors explicitly link the variables into models, Mazmanian and Sabatier (see, e.g., 1983) and Van Meter and Van Horn (see, e.g., 1975).

Van Meter and Van Horn (1975) assume that the implementation process will vary depending on the nature of policy. Policies are classified according to: a) the amount of change involved; b) the degree of goal consensus among participants in the implementation process. They assume that the prospects for effective implementation is high when the amount of change required is low and consensus high. From this starting point, they propose six variables that may shape the linkage between policy and performance: a) policy standards and objectives; b) resources; c) interorganizational communication and enforcement activities; c) characteristics of the implementing agencies; d) economic, social and political conditions; e) the disposition of implementors. In contrast to this policy focus, Mazmanian and Sabatier (1983) start out with "tractability of the problem" as the first class of variables. Problems may affect implementation directly or indirectly through "ability of statute to structure implementation" and "nonstatutory variables affecting implementation." They operate with five dependent variables as stages (policy output, compliance with policy, actual impacts, perceived impacts, major revision in statute), and assume that the independent variables may affect the relationship between different stages.

Lessons To Be Learned

There are also different views concerning the lessons to be learned within implementation research. Sabatier (1986) emphasizes four general lessons: 1) official policy-makers have only a limited ability to control the behavior of street-level bureaucrats, particularly when the latter are rather high-status professionals; 2) a time frame of at least five to 10 years is generally required to avoid premature conclusions concerning a program's effect and to permit some appreciation of the extent of policy-oriented learning; 3) erroneous causal assumptions are often among the most important factors explaining performance gaps in governmental policies; 4) it may be preferable in many instances to start from the actors involved in policy problems rather than those involved in implementing a policy decision. On the basis of such conclusions, several scholars have moved from implementation research into analysis of policy evolution and learning. O'Toole (1986) emphasizes that it is difficult to draw any lessons at all. He discusses to what extent good empirically-based recommendations to policy-makers have emerged and concludes: 1) the literature is found to impose a number of restrictions on the quality of advice available to practitioners; 2) the field is complex without much cumulation and a number of proposals have been contradictory. Two reasons for the lack of development are discussed: a) normative disagreement (top-down/bottom-up); and b) the state of the field's empirical theory. The article concludes that numerous possibilities remain for increasing the quality of the latter.

Another type of lesson to be learned that is rarely mentioned is the importance of choosing cases deliberately on the basis of methodological criteria. Due to the complexity of implementation research, the classical problem of "too few cases, too many variables" has emerged (Goggin 1986). As Lijphart (1971/75) has reminded us, there are essentially three strategies to avoid this problem: a) restrict the number of variables to only those that are critical; b) increase the number of cases; c) introduce an element of control by selecting cases on the basis of comparability and similarity (on either dependent or independent variables).

Conclusion

This brief review of the history of implementation research clearly shows that there is no authoritative implementation theory or model of public policy that can be applied automatically. The field is diverse and characterized by conflicting approaches and lack of cumulative knowledge. On the other hand, there are lessons to be drawn from over 20 years of public policy implementation research that may help us to avoid some crucial pitfalls, such as the time frame required before it makes sense to evaluate implementation. Moreover, Pressman and Wildavsky's emphasis on the importance of the causal theory underlying a program seems to have survived as one consensual lesson to be drawn, though few have actually tested it. This may be particularly relevant to environmental policy, where conflicting perceptions of the causes of and solutions to environmental problems - such as the relationship between economic growth and environmental quality - certainly exist.

A BRIEF HISTORY OF THE STUDY OF INTERNATIONAL ENVIRONMENTAL REGIMES ⁴

Birth: American Hegemonic Worries, Stockholm '72 - and More

The point of departure for the study of international environmental regimes may be seen as the product of the merging of at least two major trends. On the one hand, there was broader intellectual interest, especially in the United States, in international regimes as a key concept for discussing changes in postwar international relations (see, e.g., Ruggie 1975; Krasner 1983). These changes were very much related to growing economic interdependence and a more problematic American position in issue-areas like trade and monetary politics (Young 1986; Haggard/Simmons 1987). As indicated by Haggard/Simmons (1987), "soft" international policy measures like coordination and "loose" organization, in response to the challenges related to interdependence, did not easily fit into either the "anarchic" realist thinking or the "traditional" formal organization models (very much focusing on integration/the European Community and the UN). Hence the regime concept represented a kind of handy theoretical middle ground.

On the other hand, the interest in international resources and the environment in this connection is strongly related to the upsurge in multilateral environmental agreements established in the wake of the UNCHE. More than half of the approximately 150 multilateral environmental treaties concluded since 1921 have been concluded since 1973 (Haas/Keohane/Levy 1993). Given the focus of practitioners on negotiation of regimes in many areas, and the difficulties in achieving agreement, the main theoretical interest of scholars lay in the conditions for "successful" regime "formation."

Before we turn to the regime formation literature, we briefly consider the content/definition of the regime concept. The regime definition which is probably most often referred to is that proposed by S. Krasner in 1983: implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relationships. Partly as a response to criticism of analytical "woolliness" and lack of focus, Robert Keohane has more recently, in connection with a large-scale international database project on regime properties, suggested the following, somewhat simpler definition: institutions

4 A comprehensive overview of the study of international regimes and their effectiveness has been published by another team within the IEC project, Marc Levy, Oran Young and Michael Zürn (*The Study of International Regimes*, WP-94-113, 1994).

with explicit rules, agreed upon by governments, that pertain to particular sets of issues in international relationships (Keohane 1993).

Growth: (Resource) Regime Formation

As indicated above, much of the relevant initial regime literature used the Law of the Sea negotiations as an empirical backdrop. For instance, Ernst Haas (1975; 1980; 1982) draws on the LOS experience and the negotiation on a New International Economic Order to discuss the role of (consensual) knowledge, technology, learning and issue-linkages in regime development processes. But since the early 1980s the study of regime formation in the field of international resources and the environment has been very much related to the writings of Oran Young (e.g., 1982; 1986; 1989 A and B). A key concept in Young's thinking on regime formation is the concept of "institutional bargaining." Set as an alternative to power theorists and mainstream utilitarians, the model of institutional bargaining emphasizes a limited set of specific features of such processes : "multiple actors" (thus hard to collapse into two-sided bargaining processes) and "unanimity as decision-rule" (which makes the identification of "winning coalitions" less interesting); "integrative bargaining" (due to the absence of a fixed, unchanging and generally acknowledged contract curve or negotiation set); a "veil of uncertainty" (as institutional arrangements apply across a wide range of contexts and long period of time); an incremental problem-solving approach, often structured around a suggested negotiated text; extensive intra-party bargaining, forming the basis for the development of supportive transnational alliances; and "shifting involvements," i.e., constant possibilities of various types of linkages. Against the background of this model, Young formulates a set of assumptions about partly necessary and partly "benign" conditions under which institutional bargaining will succeed: "when the issues lend themselves to contractarian interactions"; "when arrangements are available that all participants can accept as equitable"; "when salient solutions are available"; "when clear-cut and effective compliance mechanisms are available"; "when exogenous shocks or crises occur"; "when effective leadership emerges."

So far the most extensive and elaborate effort to empirically test this broader analytical framework can be found in the 1993 book *Polar Politics*, which Young edited with Gail Osherenko. Here, the "interest-based" institutional bargaining model is "tested" against three other broad categories of hypotheses : "power-based" hypotheses (with much focus on the role of hegemons); "knowledge-based" hypotheses (focusing on the role of scientific convergence and epistemic communities); and "contextual factors" (e.g., when national and world events provide brief "windows of

opportunity"). Case studies include North Pacific fur seals; the Svalbard archipelago; polar bears; stratospheric ozone; and arctic haze. Some of their main conclusions can be summed up as follows: None of the cases offered strong support for the hegemon thesis; within the interest-based model, the leadership thesis received strong support. Moreover, the role of salient solutions, effective compliance mechanisms and integrative bargaining seemed quite important. The role of factors like a veil of uncertainty and exogenous shocks seemed of some importance; four out of five cases confirmed the importance of knowledge; regarding contextual factors, "one of the most striking findings of this project" was the important role of such factors.

Sometimes influenced by and sometimes reflected in Young's writings, three other "sub-trends" can be discerned in the development of the study of international resource/ environmental regime formation in the late 1980s and first half of the 1990s: first, attention has very much shifted away from the initial focus on resource regimes and toward environmental regime formation processes in issue areas like ozone-depletion, greenhouse/climate and biodiversity. Second, several contributions focusing on the concept of "epistemic communities" (e.g., Haas 1990; 1992) have revitalized the debate on the role of cognitive factors in regime creation. Epistemic communities can be defined as "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area" (Haas, ed., 1992). Third, some specific attention has also been given to the concept and role of leadership in resource and environmental processes (Young 1991; Underdal 1991; Skodvin 1991). However, it should be noted that the literature on the two latter themes - epistemic communities and leadership - is not only confined to the regime formation stage. But we think it is correct to say that far more attention has been given to the role of these factors in the formation stage than in the functioning stage.

Maturation: Effectiveness and Environmental Institutions

As the bulk of international environmental regimes did not see the light of day until the mid 1970s, it is understandable that the question of the actual effectiveness of these arrangements was not seriously addressed until the late 1980s. Hence it is also understandable that most of the relevant early contributions focused on the functioning of resource regimes. For instance, Underdal (1980) analyzed the functioning of the North-East Atlantic Fisheries Commission (NEAFC). Among other things, this work introduced the much-cited concept of the "law of the least ambitious program": "Where international management can be established only through agreement among all significant parties involved, and where such a regulation is

considered only on its own merits, collective action will be limited to those measures acceptable to the least enthusiastic party" (p. 36).

Young's 1982 book *Resource Regimes* suggested the following evaluation criteria with regard to the assessment of regime functioning: "allocative efficiency" (analytically and empirically problematic though); "noneconomic values" (ecological "rights"; welfare of future generations, etc.); "equity"; "transaction costs" (costs of obtaining information, negotiating agreements, etc.); and (political) "feasibility." It should be noted, however, that Young's focus was broad, encompassing both international and national regimes, and also that his suggested criteria were not designed for large-scale international empirical "testing."

The third early contribution, Kay and Jacobson's 1983 book *Environmental Protection: The International Dimension*, was a quite large-scale effort. Its formal focus was on the environmental protection activities of international organizations. Their 11 case studies included both "the role of international organizations" in the issue area of radioactive waste disposal, and what must be called regime assessments (the London Dumping Convention, the Mediterranean Action Plan). After noting that evaluating the effectiveness of international organizations is "extraordinarily complex," they chose the following main effectiveness indicators: 1) procedural and substantive goal achievement; 2) the attitude of the participants toward accomplished results; 3) the attitude of observers toward accomplished results; 4) the achievements of the programs compared with those of similar programs conducted under other auspices; 5) the impact of the program on the environment.

We think the more recent effectiveness story can be summed up in three points: 1) "*overview of the field*": there are several small-scale contributions (e.g., Grolin 1985; Sætevik 1988; Haas 1990; Susskind/Ozawa 1993; Nollkaemper 1992), and a limited number of larger-scale projects. We know of at least five such large-scale regime effectiveness projects: in rough chronological order, the first one is what may be termed the "Tübingen" East-West regime project, started in the mid-1980s and led by Volker Rittberger (Efinger/Rittberger/Zürn 1988; Rittberger, ed., 1990, 1993; see also Underdal's review essay 1994). The second project is the "Oslo/Seattle" project, begun in 1988, with K. Lee and E. Miles in Seattle and A. Underdal, S. Andresen, J. B. Skjærseth and J. Wettestad in Oslo as the main participants (see, e.g., Underdal 1990; Wettestad/Andresen 1991; Skjærseth 1992 A, B; Underdal/Andresen/Skjærseth/Wettestad 1992; Miles et al. 1994; Andresen/Wettestad 1995, forthcoming). The third project may be termed the "Dartmouth/Harvard" project, started in 1991, and with O. Young at Dartmouth and M. Levy at Harvard as leaders for a project group comprising researchers from several countries (e.g., Levy 1993; Young 1992;

Levy/Young, ed., forthcoming 1995). The fourth project that may be mentioned in this connection is the project led by P. Haas, R. Keohane and M. Levy who, with the aid of a larger group of researchers, published the book *Institutions for the Earth - Sources of Effective International Environmental Protection* in 1993. A fifth project, which is somewhat different from those mentioned above, is the large-scale survey of the effectiveness of 124 agreements carried out in connection with the 1992 United Nations Conference on Environment and Development (UNCED) (Sand 1992).

A different category of contributions also deserves mention. The common denominator for these contributions is the focus on "lessons learned" in environmental and resource cooperation so far (e.g., Sand 1990; Sebenius 1990; Morissette 1990; Feldman 1990; Andresen/Wettestad 1992). These contributions are of course thematically linked to the effectiveness discussion, but they do not explicitly use the effectiveness concept.

2) Regarding the definition of the *dependent variable* - "effectiveness" - a development can be witnessed from an early focus on "formal" indicators, such as the number of binding decisions adopted, to what we interpret as a growing consensus on two main perspectives. The first perspective has to do with the *political impact* of the regime. The Dartmouth/Harvard project uses the term "behavioral impact." The Oslo/Seattle project uses the somewhat broader term of "relative improvement caused by the regime." Although this term is broader, a core element is the specific political effects of the regime, compared to other possible influential factors. For instance, would the air pollution policies of the countries within the ECE region in the period 1979-94 have been the same without the LRTAP regime? Would the emissions reductions witnessed have taken place? Would emissions in some countries have been higher than what they are now?

The other perspective has to do with the *ecological impact* of the regime. Here, the Dartmouth/Harvard project talks about "problem solving": "At the most fundamental level, a regime is effective to the extent that it succeeds in solving the problem that motivated its establishment. In a sense, all other measures of effectiveness are ultimately surrogates for some direct assessment of problem solving." The Oslo/Seattle project uses the term "distance to collective optimum." It is perfectly possible that a regime having a substantial behavioral impact and leading to a substantial environmental improvement may fall far short of solving the resource/environmental problem at hand. For instance, international regulatory measures and national behavioral follow-up may bring about a far cleaner marine environment, but given that the starting point was severely polluted coastal areas, "cleaner" may still mean pretty dirty. It is even conceivable that "cleaner" may still mean "not within

long-term assimilative capacity." In line with the Dartmouth/Harvard project, we believe it is useful to see the relationship between these two perspectives in the following manner: political/behavioral impact is a necessary, but not sufficient condition for resource or environmental problem solving.

3) *Explanatory perspectives and methodological approaches* vary quite a bit. So far, the Keohane/Haas/Levy and Dartmouth/Harvard projects have contributed most with regard to the identification and specification of the role of institutional mechanisms. Keohane/Haas/Levy suggest nine possible institutional impact pathways:

1) institutions can offer rewards or punishments contingent on state policy in order to increase governmental concern and change government preferences; 2) institutions can generate new information; 3) institutions can heighten state concern by magnifying public pressure on recalcitrant states; 4) institutions can shape domestic politics by providing information that is useful to particular domestic factions; 5) institutions can interact with nongovernmental organizations (NGOs) and environmental movements to increase public concern; 6) institutions can reduce the costs of negotiating agreements by generating information; 7) the monitoring activities of international institutions can be vital to the ability of states to make and keep agreements; 8) institutions can create timetables for action, regular policy reviews and other mechanisms that call for states to demonstrate repeatedly their commitment to solving the problem at hand; 9) institutions can foster the transfer of information, skills and expertise necessary for effective domestic programs. On the whole, with much weight given to quite detailed "tracing" of regime impact processes, these projects have provided and are in the process of providing valuable information with regard to *how* regimes matter.

The Oslo/Seattle project has so far first and foremost "delimited" the room for institutional factors and problem-solving efforts by giving a great deal of attention to the nature of the problems to be solved. Problems have been characterized according to two main dimensions, "intellectual complexity" and "political malignancy." Hence, in a way, this project has provided valuable information with regard to *how much* regimes matter. Moreover, the project has carried out the first tentative attempts at synchronic regime effectiveness comparisons (Underdal/Andresen/ Skjærseth/ Wettestad 1992).

We think all the projects mentioned above would agree that much of the key to further specification of regime effectiveness and clarification of the room for and mechanisms involved in problem-solving efforts lies in a better understanding of national-state level processes, be they called "preparation," "anticipation," "compliance," "implementation," or some other term.

A BRIEF HISTORY OF THE DEVELOPMENT FROM COMPLIANCE TO IMPLEMENTATION

Studies of domestic implementation in general as well as studies of international regimes, especially their effectiveness, have obvious relevance for the study of domestic implementation of IECs. But there is also a third relevant tradition, which deals with compliance with international treaties. More recently there has been a shift of focus from the traditional "narrow" compliance to the "deeper" implementation studies, including the domestic level. This third approach is about to integrate important elements of the two first. The following is a brief and simplified sketch of this development.⁵

The Traditional Approach

Studies of compliance with international agreements go back to the 1960s and 1970s - mainly in relation to arms control but issue-areas such as trade have also been extensively covered. In these contexts, compliance has usually been used in a rather narrow sense: "the state may be in compliance when it has taken the formal legislative and administrative steps" (Chayes and Chayes 1993:94).⁶ The underlying reasoning behind this approach was characterized by the predominant position of realism among political scientists in the study of international affairs throughout this period (Slaughter Burley 1993). The state was regarded as a unitary rational actor in an anarchic international system. According to this line of thinking, in its pure and simple form (there have been considerable modifications over time), the degree of compliance is a function of a rational cost-benefit analysis on the part of the states to the agreement. The states comply if it is in their interest to do so and vice versa.

What medicine or cure is prescribed to reduce the problem of non-compliance from this traditional perspective? Again, this follows from the logic of the realist thinking.

5 No attempt will be made at doing justice to all the nuances and fine-tunings within this vast and complex research area. Within the IEC project Alexei Roginko has reviewed the current relevant literature. These aspects are also covered in much more detail in other parts of this project. However, in order to place our own contribution in relation to what others have done and are doing, a brief sketch of this development is needed.

6 Some analysts regard compliance as the most narrow concept of the three (compliance, implementation and effectiveness); others regard compliance as broader than implementation, e.g., Brown-Weiss and Jacobsen (1994). Although a harmonization might be preferable, the most important point is that that the concepts are used consistently.

As different mechanisms at the (sub)national level are not considered relevant, attention is geared to the international level. Generally what is called for is a strengthening of the international regime: it has to be made more "effective" through "hard measures," such as the possibility of introducing sanctions. The states have to be *forced* to change their cost-benefit calculations; if it hurts too much to violate the rules, "national interests" may be defined as more positively inclined toward compliance.

To make a long, complex story short, this traditional approach in the studying of compliance with international agreements is characterized by:

- compliance narrowly defined
- state as a unitary actor
- compliance a function of rational cost-benefit calculation
- anarchic international system
- main analytical focus on the international agreement
- main cure: "stronger" international regime

Gradual Modification of the Traditional Approach

In 1979 Lois Henkin stated that "almost all nations observe almost all principle national law and almost all of their obligations almost all of the time." That same year Oran Young published his book *Compliance and Public Authority*, in which he stated that "'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). Clearly, these thoughts are linked to the gradually less dominant position of the "hard-line" realists in the study of international affairs. A new class of students (some of the most prominent being Robert Keohane, Joseph Nye and Oran Young) focused more attention on complex interdependence and on the significance of social institutions and international regimes, challenging many of the basic assumptions of the "traditionalists" and the "realists."

Their approach was less state-centric and they emphasized that the anarchic nature of the international system was softened by the existence of a number of international regimes, norms, etc. This "softer" approach, launched by political scientists at the end of the 1970s, also provided a new basis for cooperation and more of a common conceptual ground between political scientists and international lawyers, always more

preoccupied with the (independent) role played by rules and norms (Slaughter Burley 1993).

A core conflict between these two schools or traditions is whether "... the nations generally comply with their international agreements [or] they violate them whenever it is in 'their interest' to do so" (Chayes and Chayes 1993:76). According to Chayes and Chayes, these different points of departures are not statement of facts but mere assumptions. Detailed empirical will tell us more about the validity of these assumptions.

The "regime-approach" focuses much attention on the possible effects of different institutional mechanisms at the regime level and on how these can be designed in order to increase compliance. The new trend, however, is to focus on softer factors. The traditional remedy for non-compliance through the use of sanctions is believed to be less effective in inducing compliance (Roginko 1994). In the eyes of these scholars sanctions are more or less "out" and the new favorite concept is "transparency." It is argued that treaty requirements and reporting systems can be framed to increase transparency, as (national) reporting of the "state of the art" traditionally has been a weak spot in connection with compliance and implementation. Within the "regime approach," considerable sophistication is applied in discussing the merits and shortcomings of different institutional mechanisms. Often, however, some of the underlying assumptions within these studies are quite similar to the traditionalists' approach: "Transparency is essential to the reciprocity that forms the basis for compliance when states are motivated by independent self-interest or are coerced into compliance" (reference to Jervis in Mitchell 1992).

Although the focus of some of these studies is on compliance, implementation and effectiveness, their main link is to the growing body of literature roughly belonging to the class of studies on the question "do international regimes matter?" - some of which is presented in the previous section of this paper. With such a point of departure it is natural to focus on the international regime as such and less at the domestic level or the interlinkage between the domestic and the international level. Thus, in many of these studies the state is still treated as a "black box."

From (Narrow) Compliance to (Deep) Implementation

A more fundamental break with the traditionalist approach is initiated by introducing the domestic level as the most important in order to explain and understand the "effectiveness" of implementation of IECs. "Ultimately it is national decisions that affect environmental quality, even though international measures may have been necessary to overcome national reluctance..." (Haas et al. 1993:16). While underlining the importance of the domestic dimension, in their book *Institutions for the Earth*, Haas et al. still deal mostly with the international level. Although they are preoccupied with the domestic level, and in particular with how regimes may increase domestic concerns and thereby enhance compliance and improve conditions for more effective domestic implementation, no systematic analyses are done of the domestic/international linkages.

It is no novel observation that studies of different domestic processes are necessary for a better understanding of international political processes (Allison 1971). However, the significance of the interlinkages between the domestic and international levels is of a more recent date (e.g., Putnam 1988). These links may be particularly important to understand within the realms of international environmental problems, bringing us from the traditional narrow compliance to the deeper domestic implementation processes. As pointed out by Chayes and Chayes (1993:94), "The state may be 'in compliance' when it has taken the formal legislative and administrative steps. Quite apart from political will, however, the construction of an effective domestic regulatory apparatus is not a simple or mechanical task." More specifically, a number of authors have pinpointed characteristics of environmental problems that are very different from problems related to, for example, arms agreements: "In this sense, international action on environmental problems penetrates more directly and more deeply domestic society than is the case with more traditional issues of foreign policy" (Hanf and Underdal 1993:2). Within many environmental agreements, the states negotiate and sign, but those directly or indirectly affected by the agreements are often myriad sub-national actors. The ability of the government as well as the international regime to change the behavior of these groups in the "right" direction is a challenge not only for less developed countries and countries in economic transition (Eastern Europe), but also for the advanced Western societies (Hanf and Underdal 1993).

This brings us to the current large-scale international research projects studying the effectiveness and implementation of international environmental agreements. Although they vary considerably regarding methodology and approach, most of them stress the importance of studying domestic-international linkages (Barcelona Workshop, 1994).

Summing up, the present studies of compliance, implementation and effectiveness of IECs have moved a long way from the traditional focus on the international level and the states as unitary rational actors. There has been an increasing tendency to underline the discrepancy between this approach and real world complexities. In this process more weight is attributed to the complexity of the state apparatus, the importance of societal actors and the need to study domestic-international linkages. The causal pathways do not only run from the regime to the states as domestic processes may be decisive for the effectiveness of international regimes. Looking at the indicators used in presenting the "traditionalist" approach, most of them have been significantly modified. This is not least a result of the merging of the previously separate traditions of regime and implementation studies. As to our role in this rapidly growing field, we will stress the need to know more about the complex domestic implementation processes before embarking upon the more ambitious effectiveness studies (Andresen and Wettstad 1995, forthcoming). Although effective implementation is not necessarily a precondition for effective problem solving, the latter issue can rarely be discussed in any depth before we have detailed empirical studies of the domestic implementation processes. In short, it seems sensible to first take one step back (implementation) in order, hopefully, to continue two steps forward (effectiveness) later on.

PART 3. HOW TO ASSESS AND EXPLAIN IMPLEMENTATION

DEPENDENT VARIABLE: IMPLEMENTATION "EFFECTIVENESS"

Implementation means "to carry something into effect." This straightforward dictionary definition raises several questions. First, what is this "something" to be carried into effect? Second, what do we mean by "effect"? Third, what is the relationship between "something" and "effect"? Fourth, how can we evaluate "effects"? Fifth, when can we expect any "effect"?

What Do We Mean by "Something"? The Object To Be Implemented

Since we are dealing with implementation of international commitments, a natural starting point would be "something" located at the *international level*. Given this starting point, at least three alternatives exist: a) intentions; b) programs; c) regimes. An alternative strategy would be to take the environmental problem at hand as a starting point. This approach is extremely complicated because it would require an evaluation of the possible impact of alternative (non-existent) programs. Hence, we would argue that this approach is most fruitful when we want to understand why only some transnational environmental problems are dealt with through international cooperation, or whether the problems are "effectively" solved. The step from policy intentions/programs/regimes to a problem orientation may therefore delimit problem-solving effectiveness studies from implementation studies.

Policy intentions may be regarded as political statements of intent, not including any requirements of subsequent efforts to materialize the intentions. A line of demarcation may be drawn between the formulation of a policy and the formal adoption of this policy. The World Commission on Environment and Development established by the UN may serve as an example of environmental-related intentions formulated at the international scene. Its famous 1987 report "Our Common Future" both diagnosed global threats and proposed various "cures." However, despite the Commission's broad global representation at high political level, its conclusions failed to represent an intergovernmental consensus because the members served the Commission in their individual capacities.

The policy intention approach opens up for two types of questions depending on subsequent action. One may either ask why a particular policy statement was not carried out, or one may try to judge how (well) it was carried out. The first question

will take us to a study of the symbolic uses of politics. To rule out the possibility of studying statements or policy intentions that were never intended to materialize, it seems wise to bear in mind the advice of Pressman and Wildavsky (1973:xiv): "You can't finish what you haven't started. Lack of implementation should not refer to failure to get going but to inability to follow through."

Bearing this statement in mind and acknowledging that to implement is a transitive verb that must have an object - there must be something out there to implement - the main question when we move to alternative b) is what precisely this object should be. We would argue that a formally adopted *program* can serve as a minimum requirement for a starting point. While the criterion of formal adoption at the international level may refer to a program that has been decided upon by governmental representatives authorized to make decisions on behalf of their respective governments, the precise meaning of a program is far from clear. However, what we have in mind here is clusters of substantial decisions, or bargaining outcomes. Such outcomes may vary significantly along a number of dimensions such as binding/non-binding, specific/general, etc.

A third possibility is to take *regimes* as our point of departure. The heavily debated Krasner (1982) definition of regimes as "implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relationships," makes clear that international regimes are not meant to be implemented at the domestic level. For example, decision-making procedures at the international level are tools to produce outcomes. Hence, regimes shape the international rules of the game that may produce programs to be implemented. On the other hand, regimes may certainly affect domestic implementation via a number of pathways and should therefore be treated as independent variables. Moreover, the distinction between international programs and regimes may also cope with some of the criticism raised against the Krasner definition. For example, Volker Rittberger's claim that regimes are not regimes if they have not reached a certain level of effectiveness, and Keohane's more formalistic definition of regimes, are both reactions to the "vagueness" of the Krasner definition (Keohane 1993:26-29). Consequently, if we require that a regime must have produced a program that is meant to be implemented, the regime will also have achieved a certain level of decision effectiveness.

In short, the implementation of an object negotiated at the international level may be defined as the process of converting formal programs reflecting a consensus of governments.⁷

The next question is: what are such programs converted into?

What Do We Mean by "Effect"? The End Product To Be Evaluated

This brings us to the question of what we mean by "effect." In the end, international programs have to be implemented at the domestic, or national, level. At least three alternatives exist: a) outputs; b) outcomes; c) impact. These concepts are frequently mixed together and the boundaries between them are not always clear. However, at least within the field of environmental policy, output is often conceived of as norms, rules and principles (Easton 1965), outcome as change in the target group's behavior, and impact as tangible consequences affecting the physical problem at hand. These concepts are very broad and should be specified further in relation to various phases relevant for the implementation of international programs. At least five phases seem relevant. The first is ratification or acceptance of international programs. This normally takes place through parliamentary procedures. The second is transformation of international commitments into national legislation, or administrative decisions. The third is the exercise of national programs through the administrative system. These three phases belong to the output category which represents national efforts to convert international programs through the administrative system. The fourth phase is the relationship between regulators and the target groups and the target groups' response to regulation (outcome). The fifth is the consequences of the target groups' response, or behavioral change, for the physical problem at hand (impact).

It seems reasonable to argue that outcome should be the appropriate place to stop. Focusing merely on output would easily lead to "paper tiger" evaluations. An impact focus would certainly be interesting, but again we would argue that this belongs to the study of problem-solving effectiveness. Moreover, the choice between output,

⁷ The requirement of consensus means first and foremost that it does not make sense to evaluate the implementation of an international program in state A if state A explicitly has reserved itself from that program. On the other hand, in cases of majority procedures we may run into situations where states are outvoted on the basis of consensual decision procedures. In such cases, it makes sense to evaluate implementation implementation. Hence, a consensual program should fulfill at least one of the following criteria: a) consensus concerning the content of the program; and/or b) consensus decision procedures that oblige a given state to implement a given program.

outcome and impact is strongly related to which, and how many, control variables we want to include to single out the effect of the program itself. If we take national output as a point of departure, we should (at least in principle) control for: a) other relevant international programs; and b) purely national programs that would have been implemented in any case. The step to outcome would add at least three more control variables: a) misperception of the causal theories underlying the program; b) technological development unrelated to the program; c) general economic variation unrelated to the program. Moving to impact would include a cluster of additional "natural" control variables encompassing physical, biological and chemical features. Marine pollution may serve as an example. Farmers may actually change their behavior significantly to reduce emissions of nutrients, but the impact may be counterbalanced by heavy rainfall. Conversely, the quality of the sea may improve significantly in spite of no behavioral change due to dry weather. Hence we may conclude that both research costs and methodological problems are likely to increase when we move from output to impact. The methodological problems are also closely related to the fact that most of the control variables take the form of contrafactual hypothesis. Based on this preliminary discussion, we would propose the following definition of domestic implementation of international programs: by domestic implementation we mean the process of converting international programs, reflecting a formal consensus of governments into behavioral change of target groups.

The target group concept seems on the one hand quite unproblematic. If the EU decides to reduce emissions of carbon dioxide by 5%, the target groups would be the member states and affected sub-national actors within the member states. On the other hand, the concept is quite tricky because the EU program may be adopted by other institutions, like the OECD. This may lead to implementation by non-EU countries as well. However, at least empirically this is a very complex matter because such spin-offs may lead to an endless chain of unanticipated reactions. For example, representatives from 11 international governmental organizations, commissions and conventions were observers at the 1990 North Sea conference in The Hague. Among them were representatives for the Barcelona Convention covering the Mediterranean Sea. Since the parties to the Barcelona Convention know that any development of the North Sea cooperation is closely followed, it may very well be the case that sub-national actors surrounding the Mediterranean may anticipate the next step of the Barcelona Commission. To put it more bluntly, due to a proactive strategy based on production of environmentally friendly technology, an Israeli manager may strive to be ahead of political regulations because he perceives it to be in the interest of his firm. Thus, he may react to the North Sea conference declarations as a signal of regulations to come within the framework of the Barcelona Convention.

While this is an exciting line of empirical thought, the problem is where to draw the border line analytically. One dimension may clarify this. First, a program may have an effect on the target groups the program is aimed at. This may be termed "internal" effects. A program may also have an effect outside the target groups in focus, i.e., "external" effects. Such effects have also been described as "model diffusion" in the sense that actors borrow regulatory ideas from one another (Sand 1991). This dimension may be separated by the scope of membership. But a program may also have an "external" effect outside the sector, or issue area, it is aimed at regulating. Such effects may cause both "positive" and "negative" consequences for the environment. For example, if an international consensus emerged to stop whaling and this decision was implemented perfectly, the whalers could either become fishermen and increase the pressure on fish stocks, or they could join Greenpeace. Opinions would probably vary as to whether this very hypothetical example would represent a "positive" or "negative" environmental effect. Internal effects may be described in terms of intended consequences, while external effects normally are related to unintended consequences.

While both "external" and "internal" effects would be interesting to study, we think that the main focus of this project should be put on internal effects. Therefore we will argue that the main focus should be put on a "narrow" definition of effects and target groups. The main reason for this choice is related to how we perceive the main aim of the project: to study whether and why the behavior of target groups can be channelled in an intended direction.

What Is the Relationship Between "Something" and "Effect"? Dynamic Process

A sequential "top-down" approach in the sense that we start from the international program A and go through the domestic phases b, c and d, and end up at effect E, may be defended analytically. In reality, however, this approach does not capture the fact that an international program does not normally "leave" the international scene and enter the domestic sphere. Subsequent parallel international cooperation, negotiation or coordination may lead to program reformulation at the international level, implying a feedback mechanism between the domestic and international spheres. There may be a dynamic relationship between the process of implementation and adjustment of the international program over time. Thus, it may be hard to know which program we should take as a point of departure. For example, if we want to study the implementation of the measures to cope with ozone depletion, should we choose the Montreal Protocol, the London amendments or the Copenhagen amendments as our object? As far as we can see, there is no a priori reason for

choosing one option over another. However, a rule of thumb may be to choose the first program with the precise aim of capturing the dynamic relationship between domestic implementation and international reformulation. On the other hand, the dynamic relationship between the domestic and international spheres does not in itself represent the object to be implemented, but rather is an explanatory factor. It is an open empirical question whether, and in which direction, subsequent international cooperation and reformulation will influence the behavior of target groups and vice versa.

How To Evaluate "Effects"? Criteria for "Effective" Implementation

If we wish to identify variations in implementation effectiveness across regimes and countries, we need some standard(s) against which to identify and judge this variation. If we stick to the outcome approach, there are at least three alternatives: a) formal objectives; b) cost-benefit; c) other normative criteria. There are many advantages with a). First, we could define roughly the "optimal" level of implementation "success." Second, we may ask whether the program has resulted in more of those values than would have been the case without the program. Third, we would not run into the problem of whether the goal matches the need, or the correspondence between policy goals and expert advice, as in "problem-solving" effectiveness studies. Fourth, we would not have any severe problems in comparing goal attainment across countries within the same regime (given that they are obliged to achieve the same goals, which is not always the case). Hence, in a comparative perspective, we are able to distinguish between low-level and high-level compliance countries within the same regime.

However, we should also be aware of some potential problems with the "goal" approach. First, the goal itself may focus directly on problem-solving, for example to eliminate pollution. In addition to severe interpretation and operationalization problems, this would lead our attention to impact. Second, if a country succeeds in reducing 25% of 50% of a given pollutant, our evaluation will depend on whether we judge the cup as half full or half empty: is it 50% success or 50% failure? This problem is likely to be most severe in single case studies. If we want to undertake a comparative study, we are mainly interested in *relative* implementation "effectiveness." Third, we have the problem of over-achievement. This last point is not just a matter of academic hairsplitting. Even from an ecological point of view, this may be problematic. An example may be found within the International Convention for the Regulation of Whaling (ICRW). One of its principal goals is to "take into consideration the interests of the consumers of whale products and the whaling

industry" (Andresen 1989:102). It does not require much imagination to see that over-achievement of this goal may contradict other ICRW goals such as conservation, and optimal utilization, and thus have a negative effect on the whale stocks.

It is not possible to find "objective," watertight solutions to these evaluation problems. Qualitative evaluations will always involve an element of subjective judgments. For example, how can we in relative terms compare 5% over-achievement with 5% under-achievement? There is probably no general and substantial solution to this problem. An analytical solution may be to introduce the following assumption: Since the ultimate goal of implementing international environmental programs is to improve the quality of the environment, we assume that providing more behavioral change than strictly required deserves a higher relative score on goal achievement than providing less. At the same time, we have to bear in mind that this does not necessarily imply a better, or more effective, solution of an environmental problem.

Compared to the cost-benefit, or transaction cost, approach, the problems surrounding goal achievement are modest. If this approach is chosen, we are interested not only in whether the parties have achieved their goal but also in how well it is achieved, i.e., at what cost. The most severe problem with this approach is that it is very hard to accurately estimate costs and benefits, especially the latter. On the other hand, this strategy is also used to compare the program under scrutiny with alternative programs. This would require an estimate of the effects of hypothetical alternatives. While it seems complicated to base our evaluations on such indicators, this approach would be very helpful in controlling for causal assumptions underlying the program. In any case, this is primarily a job for economists.

The last alternative is a more normative and subjective approach based on criteria taken from the researcher's own value preferences. This might include some fairness values or Kantian imperatives. Theoretically, this approach could lead to a conclusion of implementation failure in spite of perfect implementation leading to optimal problem-solving. We do not think that this approach is very fruitful, given the aim of this project.

When Can We Expect Any "Effect"? The Time Dimension

We have to deal with the following problems: First, evaluation can only be undertaken in retrospect. Second, when time frames are not a part of the official goal, we have to come up with some because it is always possible to argue that some reduction target will be achieved next year. Moreover, we could also run into a situation of "threshold" effects where it is very likely that substantial behavioral change will occur just after the official time frame. Third, in some cases we would have to weigh, for instance, substantial decrease in input of pollutants with some time frame. Given again the example of 50% reduction by 1995: is implementation more "effective" if a 45% reduction is achieved by 1995, than a 50% one by 1996?

As far as we can see, there are no obvious solutions to these problems. However, major criticism has been raised against much of the public policy implementation studies conducted in the 1970s, because large programs were evaluated after only a few years. It is pointed out that changing the behavior of a large number of actors takes many years, and that implementation is a matter of incremental change involving learning and policy change. One lesson to be learned within the area of international environmental cooperation is that it may take at least a decade to get the machinery going (there are, of course, some exceptions). Depending on the issue area, 10 years from the adoption of the program to evaluation, where no explicit time frames exist, could be a minimum criterion (don't ask why not nine or 11, but a longer time frame would probably exclude a number of interesting cases). This is, however, less than what is recommended in purely public policy studies (Sabatier 1986 recommends 10-15 years).

To conclude, we have argued for the use of a formally adopted program as the object to be implemented, and outcome as the end product to be evaluated against the goal after a fairly long timespan. Thus, in cases where time frames are not part of the official goal: by "optimal" implementation success, we mean perfect correlation between the behavioral change required by international programs reflecting a consensus of intent of governments, and the behavioral change actually provided by target groups, within a fairly long timespan.

EXPLAINING IMPLEMENTATION: THE INTERNATIONAL DIMENSION

Introduction

If we are right in assuming that there are "high-level" and "low-level" implementation regimes, why is this so? Everything else being equal (for instance, types of problems), we think such implementation differences between regimes can be related to the following characteristics of the regimes: regime outputs/regulations/programs; "structural" features of regimes (like access structure and decision-making rules); the role of secretariats; the role of knowledge-production processes; and verification and compliance aspects.

Although our main focus here is on the possible effect of the international dimension, on some points we highlight the links between this level and the national and domestic level in order to illustrate some broad research questions that might later be pursued. But let us first have a more systematic look at the regime characteristics.

Interest-Based Explanation of Implementation

How important is the distribution of material interests for the explanation of implementation of international commitments? Compared to studies focusing on ecological problem-solving, there is much to suggest that interest-based explanations of implementation are of less significance. The principal reason for this is that lack of political consensus due to asymmetrical interests may be a major explanation for the lack of problem-solving. An additional explanation may be lack of implementation ability. In the study of implementation, we take political consensus as a point of departure which apparently "control" for political will.

On the other hand, will to advocate joint action does not necessarily imply high incentives to *implement* own commitments. This is so for at least two reasons. First, based on the well-known abatement costs and damage costs (AC/DC) relationship, it is often assumed that this relationship should be positive before a given party supports an international program. Given that this relationship is positive, the solution reflected in the program may still be less favorable than the actor would have chosen by itself. Hence, the distance to what is favorable may vary among the parties and affect the degree of willingness. In such cases there will always be a temptation to *free-ride*, but the incentives to do so are likely to increase: a) when the *link* between own abatement costs and the reduction in own damage costs becomes weaker; b)

incentives to free-ride will be particularly strong for the *small* victim, which stands a better chance of being tolerated as a free-rider than a larger party, because the small victim would like others to reduce their pollution, and moreover its own abatement efforts will only affect others marginally; c) the smaller the costs one expects to incur by defecting (Underdal 1994).

Second, the existence of a common program agreed upon by all parties provides no guarantee that there is something in it for all parties, i.e., that there exists some integrative potential. As pointed out by Weale (1992:48), governments sometimes only reluctantly embark upon policies concerning international obligations. This may be due to *external* political pressure from other parties, which may lead to a situation where the political costs of not signing exceed economic costs. There is the possibility that countries may agree on - without any serious intention to implement - programs that are expected to lead to net welfare loss if implemented. Due to the relatively long timespans involved from signing agreements to implementation, a country may take the chance that the political pressure may ease before it is obliged to show substantial results. This strategy, if successful, may lead to political gains and no economic losses.

Characteristics of International Regimes

As witnessed in the effectiveness debate so far, at least two general approaches can be discerned: one approach is relatively "specific" and focuses on the potential impact of specific and "concrete" institutional features like "participation," "scope of the agenda," etc. Much of what we have earlier termed the "lessons" literature functions in this manner (e.g., Feldman 1990; Morissette 1990; Sebenius 1990). We ourselves have also carried out some limited analytical work in a similar vein (Andresen/Wettstad 1992; 1993). The other approach focuses on the impact of more general institutional mechanisms (e.g., Haas/Keohane/Levy 1993; Levy/Young project). An eclectic suggestion is to combine these approaches by taking more specific institutional features as the point of departure (we think this makes the debate more concrete and facilitates later debates about policy implications), and integrating as much as possible of the various insights contained in the "mechanisms" literature in the discussion of each specific feature. However, it must be admitted that the level of integration in the present version is limited.

On this background, and as indicated above, we find it helpful to distinguish five aspects of the functioning of international environmental regimes: first, regimes produce outputs/regulations/programs, which are the most specific and direct points

of departure for national implementation efforts. Second, regime activity is structured by a set of "process rules" - for instance access rules - which also may possibly influence implementation processes, through various pathways and mechanisms. Third, "formal" leadership in environmental regimes is executed by secretariats, which can vary in strength and resources. Fourth, regimes contain scientific/technological working groups, monitoring networks, etc., which may function as a potentially important knowledge-production process. Fifth, environmental regimes contain a reporting system and various other verification and compliance elements which quite naturally should be of interest in an implementation context. We are aware of the fact that there may be some degree of interplay between several of these factors.

Moreover, as indicated earlier, international environmental problems are often "attacked" by more than one international regime/organization, and it is conceivable that implementation processes in one regime are influenced by various activity within other "issue-related" international institutions. This may perhaps be termed "process linkage" effects. As noted in our discussion of the dependent variable, we should be generally aware of such possibilities, but we limit most of our initial attention to "regime-internal" aspects.

Let us begin with the most obvious and direct elements - the regime regulations - and thereafter to some extent work our way "backwards" (and sideways!) in the causal chain.

Regime Outputs/Regulations/Programs

Let us first turn our attention to the question of regime outputs/regulations. We think it is possible to discern at least four major dimensions of regime regulation "strength": "legal status," "specificity," "ambitiousness" and "differentiation."

Legal Status

Regarding legal status, the main difference is between regulations being legally binding upon the states having agreed to them, and regulations having no such binding status, being cast in the form of recommendations or political statements of intent. The LRTAP context may serve as an example. The 1988 Nox protocol, requiring the Parties to freeze their Nox emissions at 1987 levels by 1995, is a legally binding regulation. At the same meeting in Sofia where the Nox freeze was decided upon, a smaller group of countries issued a more "political" statement of intent, pledging themselves to a 30% Nox emissions reductions by 1998. Generally, we would assume

that states would find it politically more difficult to disregard binding decisions, and hence that binding international decisions are implemented more effectively than recommendations. As a point of departure governments will probably push harder (downwards) to implement a formally binding agreement as it is a result of more thorough formal national processes with ratification in parliament as one necessary precondition. In a sense it "costs" more and it "means" more to enter a formal agreement. It may also often be perceived that following up such an agreement is more important for the countries' environmental reputation ("upward relationship") and image. This is a formal line of reasoning closely related to the more "traditionalistic" compliance studies. As such it should not be discarded, but it needs to be supplemented with an analysis of the role of (other) societal actors. Evidence from both the LRTAP/Nox process and the North Sea regime indicate that other political processes may outweigh the significance of whether it is a formal agreement or not. Although we assume that, all other things being equal, the chances of effective implementation are higher under a formal agreement, the real challenge is to trace how, when and under what conditions this makes a difference for effective domestic implementation.

Specificity

Turning to specificity, on the one hand, this has to do with the question if international decisions contain quantitative targets. To stay within the LRTAP context, an example could be the 30% emission reduction target decided upon in the 1985 sulphur protocol. Another aspect of this is if such reduction targets are to be achieved within specific time frames. For instance, the LRTAP 30% sulphur reduction was to be achieved within 1993.

In our general implementation context, it is reasonable to assume that a specified decision will result in "more" implementation than a more generally worded decision. More specified decisions may cause more implementation domestically also simply because any discrepancy from targets and dates will be visible - in contrast to the lack of such when goals are vague. Thus, much of the same mechanisms can be expected to apply as the ones described above under "legal status"; such agreements create stronger incentives for governments to *try* to implement, but again this will be tempered by the interests and activities of different societal groups. On the other hand, it is questionable if one can say that the more specific decision is "better" implemented, as the point of departure is different. There may also be a trade-off between "specificity" and "legal status": as formal obligations put more concrete demands upon the participants, they may be more reluctant to undertake more specific commitments, and vice versa.

Ambitiousness

"Ambitiousness" has to do with the degree and type of behavioral change required by the international decision. It is easier to achieve implementation "success" in relation to a decision requiring a 30% cut in SO₂ emissions, than in the case of a decision requiring a 60% cut. The same logic applies with regard to the time dimension. Another dimension of this is related to an aspect mentioned earlier: it is easier to achieve implementation success for a policy aimed at a marginally important societal activity than for a policy aimed at a core societal activity. In a sense this aspect works the other way round compared to the first two factors; while the first two dimensions as a point of departure can be expected to increase implementation the more specific and formal/refined they are, the higher the ambitiousness the lower implementation can be expected to become.

Differentiation

"Differentiation" has to do with the extent to which international regimes have different targets and timelines for different types of actors. The traditional environmental agreements have tended to put the same obligations on all parties, irrespective of their capacity and ability to implement. Recently more flexible approaches have been suggested, primarily as a means to reach agreement, but it may also affect the process of implementation. Such agreements may be perceived as more legitimate by otherwise skeptical participants, and may increase - if not their capacity - at least their possibility and political will for subsequent implementation. Empirical evidence does not abound on this account, but the implementation of the EC directive on Large Combustion Plants may be studied in such a context.

Structural Features of Regimes

Let us then move on to the question of regime structure and "process rules." At least the following structural features seem potentially interesting in connection with the question of implementation: participation (among other things access rules); and decision-making rules.

Participation

With regard to participation, at least three main dimensions are discernible: "scope"; "access rules"; and "level". With the term "scope" we are mainly referring to the question of whether the regime is global, regional or bilateral in scope. This is of

course mainly, but not exclusively, determined by the type of environmental problem at hand. Regional regimes to combat ozone depletion are conceivable, but the problem *is* truly global. While this is clearly debatable, it seems reasonable to assume that the wider the scope, the more multifarious are the participating states and their interests, and the less effective are the related implementation processes. Due to a perceived low level of affectedness, as well as for other reasons (priority, capacity, etc.), preparedness as well as involvement will often be marginal for a large number of actors - paying mostly lip-service to the agreement reached. Although this often results in rather toothless global agreements, implementation in general can often be expected to be low, compared to more regional/limited agreements.

Access rules have to do with, on the one hand, what type of states may join the regime. Although this is usually given by the type of problem at hand, there are borderline cases. It may be argued that issues related to the Antarctic are no less global than the whaling issue. Nevertheless, the International Whaling Commission (IWC) is an example of an "inclusive" approach - the regime is open to all - while the Antarctic Treaty System (ATS) is an example of an exclusive regime, where only countries with demonstrable interests can become members. As a working hypothesis, it seems reasonable to assume much of the same logic in this case as for "scope": participating states and their interests are probably more multifarious in "inclusive" than in "exclusive" regimes, and hence implementation processes are more effective in the latter regimes.

On the other hand, such rules also regulate the participation of actors "outside" the formal regime parties: observers from other regimes/organizations, private-sector organizations, environmental NGOs, etc. There are considerable variations in the rules laid down among different regimes on this dimension as well. Following the above illustrations; the IWC is also here a very open organization, while the ATS is much more closed. In this connection, several authors have pinpointed the "openness" of the ozone-layer regime as a factor which contributed to increase the overall legitimacy of this international decision-making process (see, e.g., Morisette 1990). The general tendency also seems to move in the direction of more openness and access for such groups. The logic is that the participation of such actors can bring to bear a wide range of information and viewpoints at an early stage in the process, thereby improving the ultimate prospects for ratification. Less attention has been paid to the link between this broader participation and the prospects for successful implementation. At the general level we would assume that participation by environmental NGOs at this stage would also increase the chances for effective implementation - although we expect to find significant differences between issue-areas and countries.

The "level" aspect of regimes has to do with the extent to which important regime meetings are dominated by ministers/politicians or bureaucrats. In the case of the North Sea cooperation, it has been maintained that the introduction of more "political" North Sea Conferences, with ministerial participation, was an important factor in vitalizing a somewhat stagnant regime (e.g., Wettestad 1991). More generally, it seems reasonable to assume that regular "high level"/political gatherings can contribute significantly not only in the negotiation phases, but also in the implementation processes.

Decision-Making Rules

In connection with international negotiation processes, it is common to state that majority rules are "stronger" than unanimity. In international environmental regimes so far, this has mostly been of theoretical interest. Unanimity has in practice been the basic decision rule, and outputs have most often been in accordance with the previously mentioned law of the least ambitious program (Underdal 1980; Sætevik 1988).

Although not a "traditional" international environmental regime like the LRTAP, and probably to a great extent because of its broader scope, the European Community/Union has gradually evolved into the most interesting exception in this connection in international environmental politics. The room for the use of a qualified majority has gradually increased, and the Maastricht treaty establishes such a majority as the standard decision procedure for EU environmental measures. Hence, it seems reasonable to conclude that "the EC has a generally higher capacity to aggregate interests and preferences in the area of the environment than traditional environmental cooperation" (Skjærseth, 1993). But does this conclusion necessarily hold true for the implementation phase? We doubt it. At least in situations with a significant minority (but not enough to form a "blocking minority"), it is easy to imagine these minority states as quite lukewarm implementers. Hence, although the initial regulation may be environmentally "stronger" than what could have been produced under a consensus regime, the final environmental effect may be far less different than the implementation starting point might imply. Nevertheless, a majority procedure may produce incentives for the "pushers" to go further in their implementation effort than they would otherwise have done, while the "laggards" at least cannot be expected to perform "worse" than they would otherwise have done; they may feel some kind of pressure to stretch for a more ambitious goal. In our view, the general pros and cons here could form the basis of a specific EU implementation case study. The results of such a case study could also provide

interesting input to a broader discussion about the feasibility of "stronger" international institutions, as for instance called for in the 1989 Hague Declaration.

The Role of Secretariats

In international environmental regimes so far, secretariats have generally been on the passive and resource-poor side, and of limited interest as driving factors in the processes. Based on the cases we are familiar with, they have not had a very decisive effect on the course of events in domestic implementation. Their general role in this connection deals with "traditional" state compliance where questions related to national reporting play a key role. Although the procedures are generally "soft" and the "hard" input are based on unverified national data, there are indications that such soft procedures as publication of data and mild but persistent pressure may have some effect.

In general, we expect the secretariats to have a limited causal interest from our perspective, but as there are significant variations, this is clearly an avenue which can be pursued further.

The major exception has been the role of UNEP, for instance in the ozone layer and "Mediterranean" regimes (if it is at all reasonable to discuss the role of organizations like UNEP in the same context as the LRTAP secretariat). As far as we can see, this is very much the situation in the implementation context as well. The role of UNEP within the Mediterranean Action Plan/Barcelona Convention seems clearly causally relevant for the implementation of MAP, and especially in MAP's early years. Before a Trust Fund was created in 1979, the Med plan was almost entirely supported by UNEP. From the Med plan's inception through 1986, UNEP and other UN agencies contributed \$14.4 million, while the participating governments contributed \$13.3 million, and the EC \$2.2 million (Haas 1990; Skjærseth, 1992 B). In general, though, the role of secretariats is probably of limited causal interest, but again, as we expect to find variations across issue-areas and countries, this avenue could be pursued further.

The Role of Knowledge-Production Processes

In the literature so far on the behavioral impact and effectiveness of international environmental regimes, probably the most consensual perspective and finding is the probable causal importance of knowledge-production processes. At least five of the

nine causal mechanisms identified by Haas/Keohane/Levy in *Institutions for the Earth* (1993) are knowledge-related. In their 1991 effectiveness project outline, Young and Osherenko emphasize regimes as "enhancers of cooperation" and "learning facilitators," through transparency and monitoring/exchange of information. Underdal/Andresen/Skjærseth/Wettestad (1992) also give attention to the role of international institutions and decision-making processes as frameworks for learning. The list could be much longer, but the point is hopefully clear that considerable attention is being devoted to the role of knowledge-production and learning also in more specific implementation and compliance studies. As far as we can see, the most obvious and specific pathway of learning and influence from international to national processes is the participation of *national* scientific/technical bureaucrats in international scientific/technical bodies and networks. How are these organized, who participates and according to what criteria, and how often do they meet? The study of the interaction between the secretariat, these groups and maybe other actors could focus on the existence of potential "epistemic communities" (e.g., Haas 1992). Just as such "coalitions" may help *create* an agreement, subsequently they may also divert their energy toward the implementation process. Due to the protracted and complex process of implementation, their activities may have greater significance in the formation stage than in the implementation phase. The ability of such networks to survive and function effectively over time may, however, make a difference in this respect and deserves further scrutiny. Empirical studies would probably necessitate quite extensive interviews related to a selected set of such bodies.

Verification and Compliance Aspects

As pinpointed by Young (1989 C), in addition to contributing to more general knowledge-improvement and learning, science and technology "have much to offer ... in the development of monitoring systems capable of verifying compliance or detecting violations in a non-intrusive manner" (p. 19). As the verification and monitoring aspects are being examined by another research team within the IEC project, it might be appropriate, at least initially, for us to focus most of our attention on the more "positive" compliance aspects such as the establishment of compensatory mechanisms/funds and efforts to increase transparency. The idea behind the funds is to help the countries with the least ability to implement. A general problem related to the question of funds of course is that the empirical evidence so far is limited. In several instances compensatory mechanisms are in the process of being established (the climate regime), or have not progressed beyond the discussion and planning stage (LRTAP/acid rain). Still, some evidence does exist, and it should be possible to analyze it in order to gain better insight into how compensatory mechanisms should be

optimally designed to contribute as much as possible to successful implementation. First and foremost, the "ozone fund" has now functioned for several years, and is perhaps the most relevant case on which to focus. Second, the GEF/World Bank institution may perhaps contribute valuable experiences to this discussion. Third, the EU can also offer interesting experiences here, for instance concerning the functioning of the Structural Funds and the Cohesion Fund (e.g., Skjærseth 1993).

As for the question of increased transparency, this is more of a general notion linked to the call for more openness and scrutiny of the "environmental behavior" of states. Such "performance reviews" (Schram Stokke, 1992) are familiar from economic politics and they may well come to have a positive effect upon the environmental "implementing performance" as well. However, again the problem is that there is scant empirical evidence on this dimension, but it could be discussed in terms of how to improve implementation in the future.

Summing Up

The basic assumption behind this top-down approach is the simplified notion that the states are seen as rational actors - in line with most or all research that analyzes possible effects of regime characteristics on participants. Going through the above list of indicators, generally we do not expect these factors to have a decisive effect on the implementation process. Although the influence of these factors may be more on the margin, the patterns of interaction between different states (and societal actors) and different regimes along these dimensions can in certain instances make a difference to domestic implementation. At this stage we have limited ourselves to distinguishing some of these factors and have made general assumptions as to their effect. A related and more intriguing challenge is to map the different causal pathways between the different regimes, the states and societal actors - in other words, to try to identify under what conditions the various features may have an effect.

EXPLAINING IMPLEMENTATION: THE DOMESTIC DIMENSION

Three Domestic Perspectives

As indicated in the Introduction, there are three main answers to the question on how to explain implementation: a) implementation ability; b) implementation will; c) external factors. First, some countries may be better implementers than others because their capacities in a broad sense are better - i.e., their ability to govern and to influence society. This is the main perspective outlined here and we will come back to this perspective in the later sections. Second, some countries may be better implementers than others because they are more positively disposed toward the international regulation in question and therefore more willing to follow up.

Let us have a closer look at this latter perspective. As pinpointed by Weale (1992), "governments sometimes only reluctantly embark upon policies." One of the main reasons for this reluctance is of course the states' perceptions of the relationship between their own damage costs and abatement costs. If this relationship is perceived as very asymmetrical - e.g., that British air pollution abatement first and foremost benefits the Norwegian environment and economy - then it is reasonable to assume that such "asymmetrical" countries will go about their implementation more reluctantly than others. Why do they sign "unfavorable" agreements in the first place? An important factor no doubt is pressure from other states, in many cases coupled with domestic pressure from environmental NGOs, scientists, etc. So it is reasonable to assume that the implementation performance of such reluctant signers will be very much dependent on the degree of successful continuous international and domestic pressure in the implementation phases. Moreover, their implementation performance may also be assumed to depend - to a comparatively greater degree than of others - on their confidence in the follow-up of other countries. This indicates that regime properties cannot *entirely* be regarded as a "constant": good reporting and verification procedures may be more important for the implementation efforts of countries in which the AC/DC ratio is comparatively unfavorable.

The third perspective is related to *external factors*. Unforeseen or coincidental economic and/or technological development may make implementation either easier or more difficult than originally perceived. This possibility was briefly touched upon in the dependent variable discussion under "What Do We Mean by Effect?"

Let us elaborate the domestic implementation approach a bit further. Why do some states within a given environmental regime implement international commitments

"better" than other states? Assuming for a moment that the *relative* "implementing position" of the states is roughly similar, meaning that all states have more or less the same interests in implementing the international commitments domestically, then we can distinguish between "state-society-centric," "state-centric" and "society-centric" explanatory perspectives. A basic assumption in this project is that such relationships may vary from country to country and have different implications for implementation. To put it bluntly, in most democratic states the key to understanding domestic implementation processes will probably be found in the relationship between state and society. In centrally controlled economies the state-centric perspective may be most adequate, while the society-centric perspective may be most relevant in describing LDCs.

Analytically, we can relate these explanatory perspectives to three principal research questions. At a general level, we can first ask whether variation in implementation success is due to the relationship between the structure, interests and influence of the state and the structure, interests and influence of society. There are different models, or "ideal-types," of such relationships that will be presented below. Second, at a more specific level, we ask whether variation in implementation success is due to the functioning of the state apparatus. A "state-centric" explanation would take as a point of departure that regional/municipal bodies have more power vis à vis central government in some states (e.g., Germany) than in other states (e.g., the UK). Since it is reasonable to assume that regional/local bodies feel far less committed to international principles than the central, "signatory" bodies, it is possible that differences in implementation may have something to do with the level of "federalism" within the state apparatus.

The third question will take us to a discussion of whether implementation success is due to the support or opposition of societal actors. A "society-centric" explanation would assume that the strength of environmental NGOs differs between different states. As political pressure from environmental NGOs may be seen as important for keeping up the political energy needed for a successful transition from green rhetorics and statements into green practice, it is likewise possible that differences in implementation may have something to do with the varying strength of NGOs in the states in question.

State-Society Relationships: Different Ideal Types

In the literature various models of this relationship are proposed that focus on the structure of state-society relationships and how they relate to the making of foreign policy. Our first task will be to explore how such models may relate to the executing of the results of foreign policy, i.e., implementation of international programs. The models briefly introduced here are based on Skidmore and Hudson (1993).

State-centered approaches: This model assumes that state decision-makers formulate foreign policy largely autonomous of societal actors. States have full control over their respective societies and foreign policy making is guided by national interests (defined subjectively or objectively). While society groups may have different interests than the state, they are not able to achieve any influence. Hence the study of societal groups is not required. As far as we can see, there are two major explanations of implementation failure according to this model: voluntary defection and coordination or capacity problems within the state apparatus. Our guess would be that this model may capture the essence of implementation processes in centrally planned economies.

The weak version of this model is quite interesting in an implementation perspective. Here, central decision-makers are still guided by the national interest, but foreign policy produces winners and losers among different sectors of society. Moreover, political culture may vary and give rise to ideological opposition. Political mobilization will not affect state preferences, but they may affect a state's ability to implement those preferences. State leaders may compromise with social opponents to secure their future power and authority. The study of societal groups is required to account for residual variation. Our guess would be that this model is relevant for most democracies, depending on the characteristics of the issue in focus.

Society-centered approaches: What the above model treats as exceptional, society models treat as normal. Society groups are assumed to play a central and persistent role in the implementation process.

The pluralist model. A basic assumption concerning central decision-makers is that they care most about maintaining a high degree of domestic political support. Maintaining office is more important than compliance with international goals. Hence, depending on the constellation of domestic support and opposition, domestic interests may contradict international incentives. In such cases, this model predicts that foreign policy choices are driven by domestic concerns. Thus, the key to explaining implementation lies in the relative support and strength among societal

groups. This model is probably most adequate in describing very competitive political processes.

Social blocs. A basic assumption is that power is concentrated in the hands of relatively few social blocs. Political leaders affiliate with such blocs as a particular power base and reflects the interests and ideology of the bloc. Implementation will be influenced by the relative strength and interests of such blocs. Agricultural blocs, for example, are evident in many countries. Representatives of governments, parliaments, powerful interest groups, the scientific community, and target groups (farmers) share common values and will promote essentially the same interests. Such sector blocs will probably vary from country to country, but they may also have transnational elements. There are strong indications that the problems the North Sea states have coping with agricultural runoffs is due to agricultural "iron triangles."

Transnational approach. While society models focus on nationally based societal groups and their relationships to their own government, the transnational approach focuses on the linkages among societal groups based in different countries. Transnational alliances, such as epistemic communities, may influence groups of states in the implementation phase. This phenomenon is almost an integrated part of the EU decision-making system. For example, the transnational EU business lobby played an important role in blocking the implementation of the EU-proposed carbon tax.

The State-Centric Perspective

We present this perspective here without any assumption concerning whether, or to what extent, the state controls the society. However, a basic assumption is that there is a "central" political will to implement the policy in question. It may be useful to roughly distinguish between two types of "state-centric" explanatory perspectives, one focusing on the more comprehensive strength of the relevant administrative apparatus, and the other focusing on power and interest relationships within this apparatus. The first perspective may be summed up in the following general proposition: Some states implement international commitments better than others because their administrative machineries (in terms of financial and administrative resources) are generally more advanced. This perspective is probably relevant in global environmental regimes like the ozone regime where there are considerable differences in basic administrative strength between countries in the North and in the South. But it may also be relevant in the regional, "Northern" context. Due to a mixture of cultural, historical and geographical reasons, some countries may have a more advanced administrative apparatus to deal with pollution issues than others. A good example is the impressive

administrative capacity of the Netherlands to deal with water pollution issues, which clearly is related to its low-lying position and history of floods.

The other, intra-sector perspective touches upon a range of questions. For the sake of simplicity, it may be useful to think in relation to two main perspectives: on the one hand, a horizontal power and interest balance between the central state bodies such as parliament, government and the ministries; and on the other, a vertical power and interest balance between these central state bodies and the various types of implementing target groups.

Regarding the horizontal perspective, let us first briefly comment upon the role of the parliament and the government. With regard to parliament, the formally most important role is probably in the ratification phase. After ratification, we would expect the role of parliaments to generally be less important in the process - unless the issue is polarized into a matter of high politics. But there are clearly differences related to issues and countries. For instance, there is nothing like the US General Accounting Office (GAO) in most of the countries in Europe. Moreover, electoral systems may make a difference. Whether ministers are elected or not may influence their environmental political priorities. Yet as a general assumption, we would normally not expect implementation differences to stem very much from differences in the role of parliaments.

If we turn to the role of the government, one interesting aspect here is the role of government in deciding the national "access structure" in relation to international negotiations. Assuming that implementation "success" may have something to do with the participation pattern in earlier phases, then the role of government can more or less indirectly be causally relevant. Otherwise we would expect the role of governments to account for little of the variations in level of implementation. Moving on to the inter-ministerial power and interest struggle, we have a feeling that these relationships and outcomes are somewhat closer to the causal core when it comes to explaining implementation differences. The key actor is the Ministry of Environment (ME), but the Ministries of Finance (MF) and Foreign Affairs (MFA) are often involved in several phases. Other sectoral ministries (Agriculture, Industry, etc.) are involved in relation to characteristics of the issue. One possible assumption to float relates to the administrative/budgetary strength of the ME: differences in implementation may stem from the fact that the administrative strength of the ME vis-à-vis more traditionally "skeptical" ministries (at least in environmental matters) like Finance and Industry may vary between the countries.

Yet implementation "failure" in some countries may not necessarily have anything to do with certain agencies deliberately challenging the authority of the ME; they may simply be unaware of the ME's plans and policies - in other words, a case of coordination failure. As pinpointed by Weale (1992), the design of "sectoral" and "compartmentalized" administrative apparatuses does not always match the holistic nature of environmental problems. For instance, just at the time that the UK's environment department was grasping the importance of fossil fuel combustion and global environmental change, the transport department was publishing plans to greatly expand the motorway system (Weale 1992:52). Still another assumption may be related to the relationship mentioned earlier between the preparatory/negotiating stages and the implementing stage. It may be reasonable to assume that the implementation process proceeds more smoothly in countries where all the affected ministries have participated in the hammering out of the national positions than in countries where few or none of the affected ministries have taken part.

With regard to the "vertical" perspective, it may make sense to roughly distinguish between an "internal" and an "external" dimension. The internal dimension has to do with the power and interest relationship between central and local state bodies. As a point of departure, we may recall Sabatier's (1986) general thesis: official policy-makers have only a limited ability to control the behavior of street-level bureaucrats, particularly when the latter are rather high-status professionals. More specifically, the role of the local state bodies may vary according to the issue. For instance, municipal sewage plants may be important actors in relation to the nutrients and algal bloom issue related to marine pollution while the municipal level may be less interesting in efforts to curb industrial pollution. Again we expect to find considerable differences between countries. As indicated earlier, it seems generally reasonable to assume that the chances for implementation trouble are higher in states where local bodies are relatively autonomous than in less federal states. But formal power differences may obviously be reduced or amplified by interest constellations. Take the federal case: even if local bodies may formally be able to resist much central pressure, they may have no interests in doing so, as it is very much "their" forests and lakes that the international and national policies are aimed at protecting. In another case, increased municipal water abatement efforts in order to protect a bigger sea may seem quite senseless, if "their" local water quality is already quite acceptable. Coupled with a federally skewed power structure, such a situation will not bode well for implementation prospects.

The "external" dimension has to do with the relationships between state bodies and various more micro-level target groups. Here, it has been said that "... many - perhaps most - international regimes ultimately stand or fall on their ability to influence the

behavior of all kinds of actors that are not governmental agencies themselves" (Young 1993, internal IIASA draft). In such cases, the concepts of formal power/authority and interests do have some relevance, although their relevance is probably different from that in the "internal" case. For instance, companies have to operate according to national laws and regulations. But if they are very dissatisfied with their framework conditions, they can shut down operations completely - or move to another country. Such an outcome may deliver a blow to the national economy and, often more important, at least temporarily more or less destroy local communities. Hence, private target groups enjoy a high degree of both formal and real autonomy, and *state-target group* bargaining becomes very much a keyword. Against this background, it may be reasonable to assume that implementation differences may be rooted in more successful state-target group bargaining procedures and processes in some countries than in others. Furthermore, it seems reasonable to assume that the state-target group relationship will be influenced by both more general characteristics of the state bodies: characteristics of the means through which state bodies seek to influence target groups (regarding "regulatory style"), and characteristics of the target groups.

Let us begin in "the middle," i.e., with the regulatory instruments. As at the international level, regulations may vary in "specificity," "bindingness," "flexibility" and so on. It may for instance seem reasonable to assume that a strategy of "strict," binding policies and strict enforcement would be more successful in influencing business behavior and achieving implementation than a more lenient/incremental strategy based on voluntary compliance. However, Vogel's (1986) comparative analysis of the "strict" American strategy and the "lenient" British strategy questions the relevance of such an assumption. A possible explanation can here be that a "strict" strategy can in some instances be counterproductive by alienating business and industry from the cause of the environment (Weale 1992:58, referring to DiMento). It has also been argued that as a standard is made more stringent, the performance of firms that comply increases, but additional firms will choose not to comply. Thus, at some point further tightening of the standard may lower overall compliance (Viscusi and Zeckhauser 1979).

However, the US-UK comparison reminds us that state authorities in the environmental field do not operate in a vacuum; bureaucrats are trained and have to operate according to more general administrative/cultural rules and norms of their countries. As some environmental problems may affect different parts of countries very differently (e.g., due to wind streams, the forest may be polluted to "death" in the south, while thriving in the north), and thus call for differentiated national regulations, the state's ability to "supply" such regulations may be limited by an administrative culture stressing formal equality and "fairness." In other words, some state authorities

may be more successful in influencing target groups because they operate in a more "flexible" administrative structure, facilitating the fine-tuning and choice of regulatory instruments according to the characteristics of the problem at hand.

Turning to the characteristics of the target groups, a feature which has been given some attention is the size of the polluting firms. It has been maintained that larger firms are more likely to be able to mobilize support from outside the immediate bargaining relationship, for instance from associations, friendly politicians or administrators, than are smaller firms (Hanf 1982:167), and are therefore better able to withstand regulation efforts. Thus, a country having a few, large polluting firms may in this sense and in the implementation context be worse off than a country having more numerous smaller firms.

The Society-Centric Perspective

The literature on state structure and foreign policy behavior normally limit themselves to the observation that weak states, in contrast to strong ones, are vulnerable to societal pressures (Skidmore and Hudson 1993). We seek to go beyond this observation by at least indicating the source, nature and strategies applied by society actors and "forces" in the implementation process. Moreover, we seek to indicate some general conditions that may activate support, or opposition to official implementation policy. Whether societal groups actually have influence, and under what conditions they are able to exercise this influence effectively, is related to the "state-society" discussion above.

At a more specific implementation level, there are at least three reasons why a mismatch between societal interests and state interests may occur concerning the implementation of international commitments. First, society actors, in particular target groups, do not normally and formally participate in deciding international programs. Second, and related to the first point, society actors do not have responsibilities toward other states in the international arena. Third, national interests are not necessarily in the interest of many society actors. While it may be in Norway's interest, as a downstream country, to be in the forefront of international environmental cooperation, it may be expensive for taxpayers, unattractive for large-sector interest organizations and a disaster for export-based private firms.

Sub-national society actors can analytically be divided into three major groups. In reality, however, these groups are not distinct and overlap extensively. First, we have the society at large. This group is often referred to as the public opinion. Within

democracy theory, the responsiveness of government policies to citizens' preferences has been a central concern. At a general level there is no doubt that public opinion affects policy and it is argued that public opinion is often a proximate cause of policy, affecting policy more than policy influences public opinion. Moreover, within the literature on foreign policy beliefs and public opinion, it is indicated that what the public thinks makes some difference to those who actually make foreign policy (Skidmore and Hudson 1993). This phenomenon is however likely to be influenced by the saliency of issues. The "greening" of both national and international agendas in the late 1980s was probably to a large extent a response to grassroots pressure at society level that was activated by the detection of the ozone hole, the Chernobyl accident and large oil spills. Thus, at a general level, we assume that implementation of international agreements is sensitive to change in public opinion over time. Considering that the implementation process is often very time-consuming and quite technical, however, it may well be that the effect of public opinion is stronger in the making of policies than in the implementing of such policies.

Public responses may also be more problem-related. Public opinion may vary over time and between problems. Moreover, public perception may contradict the scientific seriousness of problems. For example, highly visible problems such as large oil spills, incineration and dumping at sea have attracted more public interest than more serious land-based emissions of "invisible" hazardous substances. Public perceptions of the seriousness of specific problems may also contradict political priorities. If this is the case, we assume that this may affect the probabilities of implementation "success." Thus, however diffuse, elusive, varied and hard to measure, public opinion may make a difference for the process and outcome of implementation.

Second, we have the organized "interested public," the "third parties" or the mediators for citizens. Some of the most relevant actors are:

- NGOs
- Media
- Scientific community
- Other interest groups

We believe that such mediators can influence implementation in at least three ways. First, they can try to influence state implementation policy directly. The constellation of interests among them can in sum deviate from official implementation policy. If this is the case, we assume that their ability to influence state preferences depends on their access to political institutions and on their strength and capabilities. Second, we also assume that such groups and institutions do not merely mediate public opinion

but may "bypass" the state and introduce distinct interests and strategies of their own. For example, environmental NGOs may launch consumer campaigns in order to influence private target groups directly. Third, they may seek to influence clusters of states by creating transnational networks and launch international campaigns.

Thus, green NGOs can be expected to try to pressure states to implement adopted policies. If these groups are included in an early stage in the process, they may also contribute to the setting of more ambitious goals, making subsequent implementation more difficult to achieve. In the same manner as with public opinion, we also expect there to be differences between the level of activity of green NGOs depending upon the visibility of the issue-area; the more visible, the higher the level of activity. When emotions (as in the whaling issue) or fear (everything associated with radioactivity) are involved, NGOs know that the public can be more easily activated and consequently they stand to gain more from a higher level of activity and "noise." If technicalities abound and time frames are long, however serious the environmental problem as an issue it will often not have the same appeal, at least not to the more activist green NGOs.

To some extent the same goes for the media and political parties. The majority of news media tend to focus more on real or perceived environmental catastrophes (large oil spills, radioactive leaks, etc.) than on the slow and, at least to most of us, less visible process of loss of biological diversity. As for the role of political parties, the Norwegian debate on the introduction of goals to reduce CO₂ emissions may be illustrative. At the end of the 1980s, when the climate issue was much "hotter" than it is today, and before the considerable costs involved in limiting emissions were known to most average politicians, there was a virtual contest to adopt the most ambitious reduction goals. Some even demanded that a 50% reduction of CO₂ emissions would be suitable by the year 2000. (Although the Norwegian government was considerably more sober, it has recently been announced that even the modest aim of stabilizing CO₂ emissions will probably not be reached by that date.)

One assumption to float is that there is a strong and reinforcing link between public opinion, media and green NGOs focusing most of their attention on the most visible environmental problems. Although there are certainly variations between these actors as well as within the groups, it may be that they are more important when policies are made than when they are implemented - providing this process takes a long time and politicization is low. Nevertheless, as a *general* assumption, we would expect that participation or access by these actors in the implementation process will be positive for its outcome.

The scientific community stands somewhat apart from the above-mentioned societal actors. Presumably they represent the "independent expertise," although research has shown that this is not always the case (Andresen/Skodvin/Underdal/Wettestad 1994). In that sense they can be expected to be more concerned with the "truth" as well as the "seriousness" of the environmental problems rather than their visibility. Research has indicated that scientists have played an important role as "agenda-setters" (Young in Andresen and Østreng 1989), but less is known about their role in the process of implementation. Provided there is a scientific consensus of the issue at hand, this will probably make it more difficult for governments to delay or resist implementation. As a point of departure we will also expect the process of implementation to be more effective if relevant scientific expertise is included in the process. However, it may make a difference whether "damage scientists" (mainly natural scientists) or "abatement scientists" ("technologists" and engineers) are involved. The former may tend to stress scientific uncertainty and thus hamper the process of implementation, while the latter may stress technological solutions and opportunities and thus help speed up the process (Sonja Boehmer-Christiansen and Jim Skea 1991).

The third group is the target groups of the program. Such groups may be defined as the "emitters" - those directly affected by governmental regulation. There are at least two major types of target groups, private firms and public firms (and, of course, private households). Our basic assumption concerning such groups is that their strategies depend on how they perceive costs and benefits. We assume that their ability to follow their interests depend on the nature of governmental regulations, their access to political institutions, their strength and their capabilities.

Starting with private firms, we can roughly distinguish between two main strategies. They will either follow a (pro)active strategy in line with state implementation goals, or they may adopt a (contra)active strategy against state implementation goals. As indicated above, we believe that the nature of governmental regulations will heavily influence their strategies. Legal measures are probably more likely to trigger active resistance or cheating than voluntary agreements and economically based measures. However, it should be noted that large firms may follow both strategies at the same time due to different interests within the same firm. For example, large "emitters" often have their own environment friendly technology sections. Public firms are at least formally more under state control; thus we assume that their opportunities for active resistance to official implementation goals are more modest.

In sum, we suggest to focus on the interests, preferences and abilities of influence concerning three major society groups: public opinion, the organized "interested public" (third parties), and target groups. Let us summarize some of the observations

concerning the general conditions under which we can expect these groups to support or oppose official implementation policy. We should bear in mind, however, that affectedness by problems and regulations may vary according to societal actors, particularly major target groups. Hence their incentives are likely to differ according to specific problems. Nevertheless, we believe that at least the following factors will be decisive for either general support or opposition.

1) *Problem characteristics*: First, as already noted, support for governmental policies will probably increase when the visibility of the problem is high. Thus, if there is a match between political priorities and how the public perceives a given problem, we expect general support for that policy and vice versa. Second, support for governmental policies will probably increase when the effects of the problem are direct and widespread. If the public at large feels threatened by ultraviolet radiation, we expect strong support governmental support - *if* the government is pursuing a policy in line with public opinion. Third, support for governmental policies will probably decrease when the complexity of the problem increases. This phenomenon is also likely to trigger scientific disputes. Too many "pros" and "cons" may leave society actors ignorant.

2) *National culture and tradition*: Culture is an extremely complex factor and we will merely indicate one possible approach. When it comes to environmental matters, most societies have their hang-ups. These may be rooted in history, religion, geographic peculiarities, etc. For example, the British display a fervent interest in birds, the Norwegians in outdoor activities, the Dutch in water-related matters, the Germans in technology and forests, the Americans in whales and guns. We assume that any governmental threat to such basic values will generate intense opposition, while policies in their support will be applauded.

3) *Participation*: Support for governmental policy will probably increase if the groups have had their say prior to the adoption of any international program. This point is probably most important for those that are required to change their behavior. There are at least two reasons for this. First, they have a chance to advocate their interests. The tricky point here is that target group influence may lower the ambitiousness of goals, while at the same time increasing the probabilities of effective implementation. Second, there may be many paths to the same goal. Thus, target groups may influence governmental priorities of ends. This is particularly important when issues are technically complex. As target groups are not the only one that can be expected to be included in some way, the *balancing* of the different types of actors and their influence in different stages will be crucial for both goal formulation and implementation.

PART 4. SUMMING UP - AND SOME IDEAS ON THE ROAD AHEAD

How To Study and Measure Implementation?

We have argued for the use of a formally adopted program as the object to be implemented, and outcome as the end product to be evaluated against the goal after a fairly long timespan. In cases where time frames are not part of the official goal, by "optimal" implementation success we mean a perfect correlation between the behavioral change required by international programs and the behavioral change actually provided by target groups, within a fairly long timespan.

How To Explain Implementation?

First, if we are right in assuming that there are "high-level" and "low-level" implementation regimes, why is this so? Everything else equal (e.g., types of problems), we think such implementation differences between regimes can be related to the following characteristics of the regimes: regime outputs/regulations; "structural" features of regimes (like access structure and decision-making rules); the role of secretariats; the role of knowledge-production processes; and verification and compliance aspects. Due to our own and others' work within the effectiveness context, we find it easier to formulate more specific questions and assumptions related to regime regulations and "structural" features of regimes.

With these words as a background, let us briefly run through some of our main ideas.

1) *Regime outputs/regulations*: We think binding decisions will lead to better implementation than recommendations and guidelines; the same assumption goes for high specificity, low ambitiousness and high differentiation. However, there may be a trade-off between some of these factors. For example, is there a systematic correlation between degree of specificity and legal status? 2) *"Structural" features of regimes*: We find it reasonable to assume that regimes that are rather "exclusive" regimes with regard to state participation but rather "inclusive" with regard to participation by actors important for the implementation process, will lead to better implementation. Regarding the impact of decision-making rules, we suggest an open attitude to the implementation effects of majority decisions. Do majority rules produce "better" regulations but "poorer" implementation? 3) *The role of secretariats*: Our feeling is that in the environmental field this role is important only in some special cases. 4) *The role of knowledge-production processes*: Here we suggest focusing on the participation of national scientific/technical bureaucrats in international

scientific/technical bodies and networks. How are these organized, who participates, how often do they meet, etc.? Moreover, is it reasonable to assume, in line with Young and Osherenko, that "knowledge-based" explanations tend to be more relevant to the early stages of problem identification and diagnosis than in the stages of decision making and implementation (Underdal 1994)? 5) *Verification and compliance aspects*: We suggest focusing on the "positive" incentive side, investigating the establishment and functioning of compensatory mechanisms/funds.

These observations are all linked to the *institutional* aspects within the relevant regimes that may in one way or the other make a difference for domestic implementation of IECs. At the international level, this is where we suggest putting the main emphasis.

Moving on, if we are right in assuming that there are variations as to level of implementation within regimes, why is that? We suggest that there are three main explanatory perspectives related to this question. The first is the *political will* to implement. A crucial question here is to what extent the commitment actually reflects the material interests of the states and/or whether perception of interests change after an agreement has been reached. We assume that variations along this dimension may activate a number of interesting state strategies versus the regime. Thus, the "willingness" dimension is closely associated with interest-based explanations. This is where most of the effort has gone so far in relation to the more traditional compliance studies that are linked to the realist line of thought. We think this approach has considerably explanatory power.

However, when we are concerned with *domestic* implementation of international environmental agreements, the main challenge is to better understand the limitations and possibilities regarding the the state's *ability* to implement. Within this perspective we assume that there is the political will to implement on the part of central decision-makers. The state attempts to further national interests through implementing national programs that are in line with perceived national interests. Success or failure depends upon 1) whether the state has "control" over its own administrative machinery and societal target groups. Hence, we have distinguished between (state)-"internal" and "external" dimensions, and "horizontal" and "vertical" dimensions. Regarding the crucial "vertical" relationship between various state levels and various micro-level target groups, we have focused, among other things, on the interests of different levels and type of regulatory instruments used. Here the implementation implications of aspects such as the use of economic or normative instruments, or the stringency and specificity of state regulations, would seem to warrant further investigation. In addition, we assume that the characteristics of the target groups may make a

difference - for example, whether they are public or private, large or small. The horizontal dimension centers primarily on coordination between various administrative sectors affected by implementation.

Success also depends upon 2) whether society supports or opposes state policies. This again depends upon their interests which is a function of various factors, such as problem characteristics (e.g., visibility) and national culture and tradition (the whales and guns factor). Moreover, success depends upon whether societal actors are able to influence the state effectively. There are various models available - which are briefly discussed - on the relationship between the structure of state and society and how they relate to the making of foreign policy.

Implementation success or failure is not only a function of implementation will and ability. If the aim is to explain as much as possible of the implementation process, we should also include *external factors* like coincidental or unforeseen developments, such as technological and economic development. These may make implementation easier or more difficult than originally expected. Since these developments are not the result of intended implementation policies, this is only briefly discussed in the section discussing the dependent variable.

Ideally, domestic implementation should be studied and explained "all the way" from top to bottom and vice versa. Although we have painted an admittedly rather complex picture, looking at only three of the six relationships we outlined in the Introduction, we have still simplified considerably. Thus, the relationships may be even less neat than we have outlined here. For example, the causal mechanisms may go directly from the regime to societal actors. Conversely, a societal group may bypass the state and seek to influence the regime directly. We will also expect the strength and direction of the different causal mechanisms to vary depending upon issue-specific characteristics of countries and regimes.

Considering real-world constraints - that is, our own limited intellectual resources as well as limited economic resources - it seemed to make more sense to use our effort to limit our perspective and approach rather than to try to further summarize all that can be said about domestic implementation of international environmental commitments. This paper lays out broad territory which we are now narrowing down.

Epilogue

As mentioned in our preface ("Background"), we spent the hot summer weeks at IIASA last year discussing a possible "niche" or more specific approach. After some very heated debates, the idea, first proposed by Olav Schram Stokke, of zooming in on the significance of access and participation for the process and outcome of implementation was chosen.

We are still working on ways of putting participation and access into operation and this was also discussed at the strategic meeting on December 1, 1994, on the IEC project's historical case-study research. At this stage let us only briefly mention that it seems like a highly relevant approach from both a policy and a research perspective. The trend is unambiguous - participation tends to be broader and access increases both within international environmental regimes and within domestic environmental policies. There may be many and good reasons for this development, and the need for broader participation particularly at the international level is hailed in many political quarters as an aim in itself. Research has also indicated that the increased participation of NGOs has enhanced the possibilities for effective implementation (Brown-Weiss and Jacobsen 1994). On the other hand, it has been argued that broad participation may have some value in the large "declaratory" global processes, but that it may easily lead to implementation failure - especially in open pluralistic states, the focus of our subsequent studies (Underdal 1995). Thus, most assume that different forms of participation and access both domestically and internationally do make a difference for implementation but the causal pathways at present seems uncertain. In our subsequent work we intend to find out more about these processes within different regimes and countries.⁸

8 Our work on participation and access in general and within relevant regimes are still in the draft stage. One FNI draft on the issue was made in November 1994 and a summary of this draft, linked to the other section of what was then called Module 1, was prepared for the strategic IEC meeting in December. The regimes selected for study from this perspective are the Baltic, the North Sea, IWC and LRTAP. We have concluded on some of the countries but not all.

REFERENCES

- Allison, Graham T. (1971) "Essence of Decision: Explaining the Cuban Missile Crisis." Boston: Little Brown.
- Andresen, Steinar (1989) "Science and Politics in the International Management of Whales," *Marine Policy*, April, pp. 99-117.
- Andresen, S., Skodvin T., Underdal A., Wettestad J. (1994) "*Scientific*" Management of the Environment? Science, Politics and Institutional Design. The Fridtjof Nansen Institute, R:006.
- Andresen, Steinar and Wettestad, Jørgen (1992) "International Resource Cooperation and the Greenhouse Problem," *Global Environmental Change*, December.
- (1993) "The Effectiveness of International Resource Cooperation: Some Preliminary Notes on Institutional Design," *International Challenges*, vol. 13.
- (forthcoming 1995) "International Problem-Solving Effectiveness: The Oslo Project Story So Far," chapter for forthcoming book on international regimes, Oran Young, ed.; also forthcoming in *International Environmental Affairs*.
- Barcelona Workshop (1994) "Compliance with International Environmental Accords," proceedings of workshop held September 1-3, 1994, UN University-Generalitat of Catalonia, Coordinator Institute for International Environmental Governance.
- Boehmer-Christiansen, S. and Skea, J. (1991) *Acid Politics*. London: Belhaven Press.
- Brown-Weiss, E. and Jacobsen, H. (1994) "Strengthening Compliance with International Environmental Accords: Some Preliminary Observations from a Collaborative Project," paper presented at the 35th Convention of the International Studies Association, Washington, DC, March 1994.
- Chayes, Abram and Chayes, Antonia (1993) "On Compliance," *International Organization*, vol. 47, pp. 175-205.
- Diver, C. (1980) "A Theory of Regulatory Enforcement," *Public Policy*, vol. 28, pp. 257-301.

Dunsire, A. (1978) *Implementation in a Bureaucracy*. Oxford: Martin Robertson.

Easton, D. (1965) *A Systems Analysis of Political Life*. New York: John Wiley and Sons.

Efinger, M., Rittberger, V., Zürn, M. (1988) *Internationale Regime in den Ost-West Beziehungen*, Frankfurt/Main: Haag Herchen Verlag.

Elmore, R. (1978) "Organizational Models of Social Program Implementation," *Public Policy*, vol. 26, Spring, pp. 185-228.

Feldman, David (1990) *Managing Global Climate Change Through International Cooperation: Lessons from Prior Resource Management Efforts*, report, Global Environmental Studies Center, Oak Ridge, Tennessee.

Goggin M. L. (1986) "The 'Too Few Cases/Too Many Variables' Problem in Implementation Research," *Western Political Quarterly*, vol. 38, June, pp. 329-47.

Grolin, Jesper (1985) "Marine Environmental Regulation and the Dilemma of Collective Action," draft, Florence.

Haas, Ernst B. (1975) "Is There a Hole in the Whole? Knowledge, Technology, Interdependence, and the Construction of International Regimes," *International Organization*, Summer, vol. 29.

----- (1980) "Why Collaborate? Issue-Linkage and International Regimes," *World Politics*, vol. 32.

----- (1982) "Words Can Hurt You; or, Who Said What to Whom about International Regimes," *International Organization*, Spring, vol. 36.

Haas, Peter (1990) *Saving the Mediterranean: The Politics of International Environmental Cooperation*. New York: Columbia University Press.

----- (1992) "Introduction: Epistemic Communities and International Policy Coordination," *International Organization*, vol. 46, pp. 1-37.

Haas, P., Keohane, R., Levy, M. (1993) *Institutions for the Earth - Sources of Effective International Environmental Protection*. Cambridge, Mass.: MIT Press.

Haggard, Stephen and Simmons, Beth A. (1987) "Theories of International Regimes," *International Organization*, Summer, vol. 41, 3.

Hanf, K. (1982) "Regulatory Structures: Enforcement as Implementation," *European Journal of Political Research*, vol. 10, June, pp. 159-72.

Hanf, K. and Schrapf, F. W. (1978) *Interorganizational Policy Making: Limits to Coordination and Central Control*. London: Sage.

Hanf, K. and Underdal A. (1993) "Domesticating International Commitments - Linking National and International Decision Making," draft, to be published in Underdal, A., ed., *The International Politics of Environmental Management*, Kluwer Academic Publishers, 1995 (forthcoming).

Hawkins, K. (1984) *Environment and Enforcement*. Oxford: Clarendon.

Henkin, Louis (1979) *How Nations Behave: Law and Foreign Policy*. New York: Columbia University Press.

Kay, David A. and Jacobson, Harold K. (1983) *Environmental Protection: The International Dimension*. London: Allenheld Osmun.

Keohane, R. O. (1993) "The Analysis of International Regimes: Towards a European-American Research Programme." In Rittberger, V. and Mayer, P., eds., *Regime Theory and International Relations*. Oxford: Clarendon Press.

Kingdon J. W. (1984) *Agendas, Alternatives and Public Policies*. Boston: Little Brown.

Kotov, V. (1994) *Implementation and Effectiveness of International Environmental Regimes During the Process of Economic Transformation in Russia*. Working Paper WP-94-123, International Institute for Applied Systems Analysis.

Krasner, Stephen, ed. (1983) *International Regimes*. Ithaca, N.Y.: Cornell University Press.

Krasner, S. D. (1982) "International Regimes," *International Organization*, vol. 36, Spring.

Levy, Marc (1993) "Political Science and the Question of Effectiveness of International Environmental and Resource Agreements: A Status Report," paper

prepared for workshop on International Environmental and Resource Agreements, Oslo, October 19-20, 1992. In *International Challenges*, vol. 13 (1993).

Levy, Marc and Young, Oran, eds., forthcoming book on the effectiveness of international environmental regimes, 1995.

Lijphart, A. (1971) "Comparative Politics and the Comparative Method," *American Political Science Review*, vol. 65, September, pp. 682-93.

Lijphart, A. (1975) "The Comparable-Cases Strategy in Comparative Research," *Comparative Political Studies*, vol. 8, July, pp. 158-77.

Linder, S. and Peters, B. (1989) "Instruments of Government: Perceptions and Context," *Journal of Public Policy*, vol. 9, pp. 35-58.

Miles E., Andresen S., Lee K., Underdal A., Wettestad J. (1994) "Science, Technology and International Collaboration: Conditions for Effective Global and Regional Action Concerning the Problem of Global Climate Change," research prospectus, revised June 1994.

Mitchell, Ronald (1992) "From Paper to Practice: Improving Environmental Treaty Compliance," Ph.D. diss., Harvard University.

Morisette, Darmstadter et al. (1990) "Lessons from Other International Agreements for a Global CO₂ Accord," paper, Washington, DC, Resources for the Future.

Nollkaemper, André (1992) "On the Effectiveness of International Rules," *Acta Politica*, vol. 27, pp. 49-70.

Majone, G. and Wildavsky, A. (1978) "Implementation as Evolution," *Policy Studies Review Annual*, pp. 113-27.

Mazmanian, D. A. and Sabatier P.A. (1983) *Implementation and Public Policy*. Scott, Foresman and Company.

Osherenko, G., and Young, O. (1993) *Polar Politics*. Ithaca, N.Y.: Cornell University Press.

O'Toole, L. (1986) "Policy Recommendations for Multi Actor Implementation: An Assessment of the Field," *Journal of Public Policy*, vol. 6, April, pp. 181-210.

Pressman J. L. and Wildavsky, A. (1973) *Implementation*. Berkeley and London: University of California Press.

Rittberger, Volker, ed. (1990) *International Regimes in East-West Politics*. London and New York: Pinter Publishers.

----- (1993) *Regime Theory and International Relationships*. Oxford: Clarendon Press.

Rogers, D. and Whetten D., eds. (1982) *Inter-organizational Coordination: Theory, Research and Implementation*. The Iowa State University Press.

Roginko, Alexei (1994) *Domestic Compliance with International Environmental Agreements: A Review of Current Literature*, Working Paper WP-94-128, International Institute for Applied Systems Analysis.

Ruggie, John G. (1975) "International Responses to Technology: Concepts and Trends," *International Organization*, vol. 29, Summer.

Sabatier, P. A. (1986) "What Can We Learn from Implementation Research?" In F.-X. Kaufman, V. Ostrom and G. Majone, eds., *Guidance, Control and Performance Evaluation in the Public Sector*. Berlin: De Gruyter, pp. 313-25.

Sabatier, P. A. (1986) "Top-Down and Bottom-Up Approaches to Implementation Research: A Critical Analysis and Suggested Synthesis," *Journal of Public Policy* 6, January, pp. 21-48.

Sabatier, P. A. (1991) "Toward Better Theories of the Policy Process," *Political Science and Public Policy*, vol. 24, pp. 144-56.

Sætevik, Sunneva (1988) *Environmental Cooperation Between the North Sea States*. London: Belhaven Press.

Sand, Peter, ed. (1992) *The Effectiveness of International Environmental Agreements: A Survey of Existing Legal Instruments*. Cambridge: Grotius Publications.

Sand, P. H. (1991) "Lessons Learned in Global Environmental Governance," *Environmental Affairs Law Review*, vol. 18, part III, pp. 248-75.

Sebenius, James (1990) *Negotiating a Regime to Control Global Warming*, report, Harvard University.

Schneider, A. and Ingram, H. (1990) "Behavioural Assumptions of Policy Tools," *Journal of Politics*, vol. 52, May.

Skjærseth, Jon B. (1992 A) "Towards the End of Dumping in the North Sea - An Example of Effective Problem-Solving?" *Marine Policy*, March, pp. 130-40.

----- (1992 B) *The Mediterranean Action Plan - More Political Rhetoric than Effective Problem-Solving?* R:006-1992, The Fridtjof Nansen Institute.

----- (1993) *The Climate Policy of the EC - Too Hot to Handle? A Study of Interests and Preferences Versus EC Problem-Solving Capacity*, EED Report 1993/2, The Fridtjof Nansen Institute.

Skodvin, Tora (1991) "'Structure' and 'Agent' in International Bargaining: Institutional Design and Political Leadership in the United Nations Conference on the Law of the Sea," *Cooperation and Conflict*, vol. 27.

Slaughter Burley, A.-M. (1993) "International Law and International Relationships Theory: A Dual Agenda?" *American Journal of International Law*, vol. 87, April, pp. 205-39.

Stokke, Olav Schram (1992) "Environmental Performance Review: Concept and Design." In Lykke, E., ed., *Achieving Environmental Goals - The Concept and Practice of Environmental Performance Review*. London: Belhaven Press.

Susskind, Lawrence E. and Ozawa, Connie (1993) "Negotiating More Effective International Environmental Agreements." In Hurrell, A., Kingsbury, B., eds., *The International Politics of the Environment*. Oxford: Clarendon Press.

Underdal, Arild (1980) *The Politics of International Fisheries Management: The Case of the Northeast Atlantic*. Oslo: Universitetsforlaget.

Underdal, Arild (1995) "Implementing International Environmental Accords: Explaining 'Success' and 'Failure'," paper presented at the 36th Convention of the International Studies Association, Chicago, February 1995.

----- (1990) "Negotiating Effective Solutions: The Art and Science of Political Engineering," unpublished paper, University of Oslo.

----- (1991) "Solving Collective Problems: Notes on Three Modes of Leadership." In *Challenges of a Changing World - Festschrift to Willy Østreg*, The Fridtjof Nansen Institute.

----- (1994) *The Study of International Regimes*, draft.

Underdal, A., Andresen, S., Skjærseth, J. B., Wettestad, J. (1992) *The Effectiveness of International Resource Cooperation*, paper prepared for the Inaugural Pan-European Conference in International Relations, Heidelberg, September 16-10, 1992.

Van Meter D. S. and Van Horn C.E (1975) "The Policy Implementation Process - A Conceptual Framework," *Administration & Society*, vol. 6, February, pp. 445-88.

Viscusi, W. K. and Zeckhausen, R. J. (1979) "Optimal Standards with Incomplete Enforcement," *Public Policy*, vol. 27, pp. 437-57.

Weale, A. (1992) "Implementation Failure: A Suitable Case for Review?" In Lykke, ed., *Achieving Environmental Goals*. London: Belhaven Press, pp. 43-67.

Weale, A. (1992) *The New Politics of Pollution*. Manchester: Manchester University Press.

Wettestad, Jørgen and Andresen, Steinar (1991) *The Effectiveness of International Resource Cooperation: Some Preliminary Findings*, R:007, The Fridtjof Nansen Institute.

Young, Oran (1979) *Compliance and Public Authority: A Theory with International Applications*. Baltimore: Johns Hopkins University Press.

----- (1982) *Resource Regimes: Natural Resources and Social Institutions*. Berkeley: University of California Press.

----- (1986) "International Regimes: Toward A New Theory of Institutions," *World Politics*.

----- (1989 A). *International Cooperation: Building Regimes for Natural Resources and the Environment*. Ithaca, N.Y., Cornell University Press.

----- (1989 B) "The Politics of International Regime Formation: Managing Natural Resources and the Environment," *International Organization*, Summer, 43, 3.

----- (1989 C) "Science and Social Institutions: Lessons for International Resource Regimes." In Andresen and Østreg, eds., *International Resource Management*. London: Belhaven Press.

----- (1991) "Political Leadership and Regime Formation: On the Development of Institutions in International Society," *International Organization*, Summer, 45.

----- (1992) "The Effectiveness of International Institutions: Hard Cases and Critical Variables." In Rosenau, J. and Czempiel, E. O., *Governance Without Government: Order and Change in World Politics*. Cambridge, Cambridge University Press.

Young, Oran and von Moltke, Konrad (1994) "The Consequences of International Environmental Regimes: Report from the Barcelona Workshop," *International Environmental Affairs*, vol. 6, no. 4, Fall, pp. 348-71.