Working Paper 1992:2

THE CONCEPT OF REGIME "EFFECTIVENESS"

by

Arild Underdal

Acknowledgement:
This is a revised version of a paper written for the "Regime Summit", held at Dartmouth College's Minary Center, 21-24 November, 1991. It presents a tentative framework developed for a project initiated by Professor Edward L. Miles, University of Washington, Seattle. Discussions with Edward Miles, Kai N. Lee, Steinar Andresen, and Jørgen Wettestad have helped to clarify my own thinking on the subject.

1. INTRODUCTION

One of the basic questions in the study of international cooperation may be formulated as follows: Why are some collective problems solved more easily or effectively than others? This question may be be decomposed into several subquestions: One pertains to the conditions under which some kind of cooperative arrangement (most often a "regime") can or is likely to be established. Another pertains to the conditions under which the arrangement that is established will be *effective*, in some specified meaning of that word.

At least two good reasons can be given for shifting some of our research efforts from the former to the latter question. One is simply that if our goal is to understand the conditions for "success" and the causes of "failure", we need a sound definition and a valid indicator of "success". Focusing merely on the establishment of *any* kind of joint arrangement would provide us with a poor indicator. An international regime may be a very weak institution indeed. Conversely, a negotiation process that does not lead to full agreement may have achieved significant progress on a politically very "malign" problem. It may be perfectly sensible to rate the latter as "more successful" than the former.

Another reason for shifting priorities is that we need to develop a more sophisticated conceptual framework for studying regime "effectiveness". One of the options that have been frequently used in previous research is to focus on formal properties, notably *level of cooperation*, usually defined in terms of the kind of functions fulfilled (information exchange, rule-making, rule enforcement, etc., see e.g. Kay & Jacobson 1983:14-18). Level of co-operation may be positively correlated with, and in fact causally related to, problem-solving "effectiveness", but the link is hardly compelling. The fact that a regime does include substantive regulations does not tell us anything about the "clout" of those regulations. Another strategy that has been used is to focus on procedural indicators, such as the extent to which the work of an international organization proceeds as scheduled (cf Jacobson & Kay 1983:316-317), or the speed and rate of ratifications. Again, these are crude and unreliable indicators of substantive "effectiveness". More promising are some notions of regime

"strength", including the one(s) suggested by Aggarwal (1985:20), and Zacker (1987:177)[1]. But recent literature provides us with quite different concepts of regime "strength"[2], so great care is required before making inferences from term to concept. As Oran Young (1991) has demonstrated, the same warning applies to statements about "effectiveness". Before plunging into large-scale comparative studies, a fair amount of conceptual groundwork therefore seems required to clarify *what* precisely is our dependent variable. This paper offers some quite tentative reflections on that question.

Most basically, evaluating the "effectiveness" of a cooperative arrangement means *comparing* something - let us provisionally refer to this object simply as "the regime" - against some standard of success or accomplishment. Any attempt at designing a framework for the study of regime effectiveness must, then, cope with at least three (sets of) questions: (1) What precisely constitutes *the object* to be evaluated? (2) Against which *standard* is this object to be evaluated? (3) *How* do we operationally go about comparing the object to our standard; in other words, what kind of measurement operations do we have to perform in order to attribute a certain *score* of "effectiveness" to a certain object (regime)? Let me briefly consider these three questions.

2. *WHAT* CONSTITUTES THE OBJECT TO BE EVALUATED?

The answer may at first thought appear obvious; the object clearly must be the arrangement in focus. On second thought, however, it becomes abundantly clear that this answer does not take us very far. Let us therefore briefly consider the main options before us.

First, we shall have to determine whether we are interested only in the substantive arrangement itself or also in the costs incurred in producing and maintaining it. The former is the appropriate basis for evaluating the *regime* itself (or calculating "gross" benefits), while

---

[1] Aggarwal (1985:20) defines regime "strength" according to "...the stringency with which rules regulate the behavior of countries". Zacker (1987:177) suggests that "...the *strength* of a regime should be determined by the extent to which the package of injunctions constrains states' behavior".

[2] Compare the definition adopted by Aggarwal to that proposed by Haggard & Simmons (1987:496): "Strength is measured by the degree of compliance with regime injunctions".

the latter provides a basis for evaluating *problem-solving efforts* (or determining "net" benefits). A rational actor is presumed to make his choices on the basis of some estimate of net benefits. I suspect, though, that most governments in the industrialized world in fact tend not to pay much attention to the costs of international problem-solving efforts - at least as far as transaction costs in the most basic sense are concerned (salaries, office costs, travel and accommodation expenses, etc)[3]. In this paper I shall deal only with (the consequences of) the arrangement itself; the costs of producing or maintaining it will not be considered here.

Second, we should also ask ourselves whether we want to conceive of "success" only in terms of the (net) benefits produced, or in terms of the more elusive notion of "achievement", the difference being that in the latter case success is "weighted" by taking into account also the "malignity" of the problem in focus. In this paper I shall adopt the former perspective, but we should recognize that for some purposes - e.g. evaluating the prospects for "solving" a certain problem - the latter perspective would provide the more interesting construct. Other things being equal, the more "malign" the problem, the more it takes to solve it, and the greater would be the achievement of solving it. Thus, the problem of controlling anthropogenic sources of global climate change is certainly far more complex and arguably also significantly more "malign" (in political terms) than e.g. the problem of preventing the depletion of stratospheric ozone. From this statement it follows that more intellectual and institutional capacity and a greater amount of "political energy" will be required to achieve the "same" level of "effectiveness".

Third, as Easton (1965:351-2) and others remind us, a distinction should be made between the *output* of a decision-making process (i.e. the norms, principles and rules constituting the regime itself) and the set of consequences flowing from the implementation of and adjustment to that regime (here referred to as *impact*). The former focuses on the phase of regime creation, while the latter takes us into the stage of regime implementation and maintainance. In the end, impact will normally be the more important concern. But the actual impact of a regime or a regulation can be determined only in retrospect - meaning several years after its

[3] Governments tend to be, it seems, considerably more concerned about political *side-effects* of problem-solving efforts.

entry into force[4]. If we want to evaluate regime effectiveness at an earlier stage - as we often do - the regime itself will be all that is known to us. In such a situation we should realize that predicting impact on the basis of data only about output will not necessarily be a straightforward exercise. In cases where regulations are of the "command-and-control" type, we at least know (more or less precisely) which kinds of behavior are prescribed, permitted or prohibited. But actors do sometimes respond by more or less flagrant non-compliance or by making ingenious adjustments that may be hard to predict. In cases where some instrument for manipulating incentives (e.g. pollution charges) is being used, all we know is the additional costs that actors are supposed to pay for a certain amount of "unwanted" behavior (or the additional benefits promised as a reward for behaving "well"). How, and how strongly, actors will in fact respond to a certain change in the structure of incentives may be an open question. Two general implications for the study of regime effectiveness seem to be, first of all, that we need to specify explicitly whether we are referring to output or impact[5], and, secondly, that great caution is required in attempting to infer impact from data only about output.

3. AGAINST *WHICH STANDARD* IS THE REGIME TO BE EVALUATED?

Defining an evaluation standard involves at least two main steps: One is to determine the *point of reference* against which actual achievement is to be compared. The other is to determine what might be called "*unit of measurement*".

It seems that there are basically two points of reference that merit serious consideration in this context. One is the hypothetical state of affairs that would have come about had the regime not existed. This point of reference leads us to conceive of "effectiveness" in terms

[4] "Effectiveness" measured in terms of impact thus implies a requirement of robustness or *stability*; a regime must, at the very least, be able to survive the encounter with the problem it has been designed to solve. More generally, a solution is normally considered "stable" to the extent that incentives to defect or cheat are absent or effectively curbed.

[5] Note that our choice of evaluation standard may imply a choice of object as well. Thus, if we decide to evaluate regimes against some notion of political feasibility, output seems to be the appropriate object.

of *relative improvement* caused by the regime[6]. This is clearly the notion we have in mind when considering whether and to what extent "regimes matter". The other option is to evaluate a regime against some concept of *collective optimum*. This is the appropriate perspective if we want to determine to what extent a collective problem is in fact "solved" under present arrangements. Using potential achievement as our point of reference, we would define a "perfect" solution as one that accomplishes all that can be accomplished - given the state of knowledge at the time[7].

These two approaches are clearly complementary. Even a regime leading to a substantial improvement may fall short of being "perfect". Conversely, in more fortunate situations a minor adjustment may be quite sufficient to reach the collective optimum. Moreover, both dimensions are interesting in their own right; international regimes are, it seems, typically evaluated in terms of how well they (can be expected to) perform compared to the state of affairs that would have come about in their absence *as well as* in terms of their ability to solve the problems they are designed to cope with. This suggests that the student of international regimes needs to be able to play with *both* these notions of effectiveness, but also that it is critical not to confuse the two. This has important implications also with regard to terminology: Referring to figure 1, cases in the upper right hand corner may unambiguosly be labelled as "effective" and those in the lower left hand cell as "ineffective". But for mixed scores we need a richer set of labels.

---

[6] This formulation does not imply an assumption that a new regime will *necessarily* improve the present state of affairs. Presumably, improving collective outcomes will be the rationale behind the establishment or restructuring of a regime. There is no sound basis for assuming, however, that a new regime will in fact necessarily function as intended by its creators. As conceived of here, then, "relative improvement" - at least if measured in terms of *impact* - can be *negative* as well as *positive*.

[7] This is an important proviso. If a group of actors succeed in accomplishing all that could be accomplished given the best knowledge available by the time, any distance remaining to the "objective" collective optimum would be a failure of *knowledge-making* rather than *decision-making*. To a student of politics, the latter will be the more important concern.

Figure 1: Two dimensions of "effectiveness".

		Distance to collective optimum	
		Great	Small
Relative improvement	High	Important, but still imperfect	Important and perfect
	Low	Insignificant and suboptimal	Unimportant, yet optimal

Each of these approaches calls for further conceptual refinement. Although intuitively meaningful to speak about "relative improvement", the provisional definition given above leaves open at least one critical question: what precisely is the *baseline* from which improvement should be measured?

In principle, it seems that we have a choice between two basic options: One is some hypothetical "state of nature" that would have obtained if, instead of the present regime, we were left in a "no-regime" condition[8]. The alternative option would be to take as our baseline the situation that would have existed had the previous "rules of the game" been left unchanged. The former measures effectiveness in "absolute" terms, while the latter focuses on incremental change (effectiveness "differentials"). For at least some analytical purposes, the former arguably provides us with the more interesting conceptualization, but at the same time it leaves us with the elusive notion of a "no-regime condition", with no clues as to how we should go about determing what such a condition would look like. If we choose the latter option, we would presumably know what we are talking about, but our conception of effectiveness would be a strictly differential one, heavily influenced by the level of

[8] We do realize that this formulation leads into intriguing conceptual problems if we accept the claim made by Puchala and Hopkins (1982:247) that "..a regime exists in every substantive issue-area in international relations where there is discernibly patterned behavior". The notion of a "no-regime" condition seems to require a stricter definition of 'regime', notably one where the existence of *explicit* norms, rules and procedures is considered a defining characteristic.

achievement obtained under previous circumstances. This again suggests that we need a richer set of labels to capture different meanings of "effectiveness".

The problems briefly outlined above indicate to me (a) that although relative improvement may legitimately be considered an interesting and important aspect of effectiveness, it should be tempered or supplemented with some measure of how well actual achievement compares to the "optimal" solution; (b) that the "no-regime" condition may be considered the more fundamental baseline from which (relative) improvement should, if at all feasible, be measured; and (c) that scores obtained by using one baseline can not - or only with great caution - be used interchangably with scores derived from another.

Conceiving of "effectiveness" in terms of the distance between what *is* actually accomplished and what *could have been* accomplished, given the state of knowledge at the time, immediately puts before us the intriguing question of what constitutes the maximum that can be accomplished. Whenever we are talking about joint solutions, the answer depends on the decision rule. If we assume that actors are free to choose *any* decision rule that they consider instrumental, the outer limit will be the solution(s) maximizing the *sum* of net benefits to the group. There are, however, several problems with this notion of joint maximum[9]. Most important here is the fact that it may rightly be dismissed as invalid for the decision rule typically used in inter-governmental dealings. Strictly interpreted, it applies only to perfectly unitary actors. Whenever collective decisions can be made only through agreement, the appropriate notion of collective optimum is the *Pareto frontier*. This frontier is reached when no further increase in benefits to one party can be obtained without thereby leaving one or more prospective partner(s) worse off. In favorable circumstances a solution maximizing the sum of net benefits may also be Pareto optimal, but there is no guarantee that the two frontiers will necessarily coincide. Accordingly, the choice between these two notions is not merely a quibble about labels.

---

[9] One problem is that if we conceive of benefits in terms of subjective utilities rather than objective "realia", this notion calls for inter-actor comparison of utilities - a methodological challenge that remains to be conclusively solved.

It is not obvious which of these, or possibly other, notions of collective optimum that is the more appropriate here. In favor of adopting the Pareto frontier it may be argued that the concern with regime effectiveness provides no role for some purely hypothetical frontier that is not generally achieveable given the institutional constraints under which actors *actually* operate. To qualify as potential a solution must be accessible within the kind of settings that do in fact exist or can feasibly be brought about.

Although compelling in itself, this argument does not quite settle the case. It remains to be determined which decision rules can be considered available instruments in international politics. The general answer seems to be that governments are, in principle, free to adopt *any* decision rule that they *collectively* consider appropriate. The crux of this formulation is the word "collectively": The choice of decision rule is itself a joint decision, and as such subject to the rule(s) for making such meta-decisions. This is equivalent to saying that any substantive decision rule may itself ultimately have to pass the threshold required by the rule governing its meta-decision. The answer may now be reformulated as follows: Governments are free to choose any decision rule that they can agree on, or can agree to determine by some other procedure. Agreement is not the only decision rule available to actors in international politics, but in a basically anarchical system it constitutes the requirement that any other decision rule will have to meet to be adopted. We may therefore conclude that - although transcendable for *specific* problem-solving efforts - the Pareto frontier may be considered the *ultimate* limit within which governments shall have to build cooperative arrangements.

In trying to apply the Pareto criterion to specific cases, we will soon discover that we are dealing with a sensitive instrument. The Pareto frontier can be determined only for a given negotiation setting, including a given set of actors and a certain set of issues and issue linkages (see Sebenius 1983). A change in any of these elements may affect the range of politically feasible solutions. This renders the Pareto frontier less attractive for purposes of empirical research than it appears in abstract reasoning. In trying to apply this notion of collective optimum in empirical research, a student will therefore often have to resort to simplistic assumptions similar to those conventionally made in formal bargaining theory.

To define a standard of evaluation we need not only to decide upon a point of reference against which actual achievement is to be compared; we also need to define some standardized *metric of evaluation* or unit of measurement. In some cases the appropriate option may be quite obvious. In others, however, we seem to face a choice between measuring "effectiveness" in terms of human welfare (usually translated into economic efficiency) or in terms of technical or ecological properties. For example, the (performance of the) IWC regime may be evaluated in terms of aggregate net economic benefits or in terms of aggregate biological yield or some preservationist notion of ecological sustainability. And the score that we would give to the IWC depends critically on which of these values we choose to base our evaluation metric. The most basic lessons seem to be that we should (a) be explicit about the choice we make, and (b) realize that scores obtained by using different evaluation metrics can not be used interchangably - at least not without a critical examination of compatibility.

4. *HOW* DO WE, IN *OPERATIONAL* TERMS, ATTRIBUTE A CERTAIN SCORE TO A CERTAIN REGIME?

As each of the different approaches outlined above raises their own particular problems of measurement, this question is too complex to be pursued in depth here. In terms of the purpose of the "Regime Summit" problems of operationalization may also be considered second-order issues, to be dealt with after a common conceptualization of effectiveness has been developed. This may permit me to get away here with just a few introductory remarks intended mainly to identify the major methodological challenges to be faced. The case study summaries provided by Wettestad & Andresen (1991) and by Miles (1991) offer several instructive illustrations.

Before submerging ourselves into the practicalities of empirical measurement, it seems appropriate to set our ambitions straight: At this stage, no attempt to go beyond *ordinal* level measurement will be attempted. The basic purpose of our research - accounting for the "success" and "failure" of international problem-solving efforts - does not require higher level measurement. Nor do I know how to construct a cardinal scale that would make sense in this

context. In fact, the ordinal scale that we intend to use in the Miles et al. project is truncated to include only three scores; "successes", "failures", and an intermediate category for cases that fall somewhere in-between. Even such a crude ordering of cases is by no means a straightforward exercise.

The major challenge that we face in moving from the conceptual to the empirical level of analysis is to attribute scores to phenomena that cannot be observed directly, but have to be *inferred* from information about some presumably related variable. More specifically, we face this kind of problem whenever we try to predict impact from information only about output, and in trying to determine empirically our point of reference - be it the collective optimum or the hypothetical state of affairs that would have existed in the absence of the regime in question. Suffice it here to say a few words about the point of reference problem.

If we conceive of effectiveness in terms of relative improvement, we need to determine what would have happened had the regime not existed. This is a counter-factual question. What we can empirically observe is the state of affairs that existed (immediately) before the regime was established (at time t_0). What we want to know, however, is the set of consequences that would have flowed from a continuation of the previous "rules of the game" (at times $t_{+1}..t_{+n}$) or what would have happened under a "no-regime" condition. Information about the state of affairs existing at time t_0 may provide a *basis* for inferring at least the former, but it is important to keep in mind that it provides only a basis; it is not itself the piece of information that we want. One practical suggestion could be to look for whatever predictions we can find in negotiation documents, preferably documents that can be seen as "non-partisan" inputs. In the absence of such data the task of determining what would otherwise have happened simply calls for the best judgment that the analyst can make himself, on the basis of available sources.

Determining the maximum that can be accomplished may be even more difficult. One sensible "rule of thumb" seems to be to look for independent expert advice indicating to decision-makers what would be the (technically) "perfect" solution. There are, though, several problems pertaining to this suggestion. One obvious constraint is that conclusive expert advice will not be available in all cases that we want to study. Secondly, even where it is available it may be hard to translate into a yardstick for measuring effectiveness. This is so for at least

two reasons: (1) it will probably refer to technical or ecological criteria, not to social welfare (which, presumably, is the principal concern of governments), nor conceive of the collective optimum in terms of political feasibility. (2) Wherever no unequivocal threshold or target exists, advice may be framed in terms of different levels of ambition (e.g. preventing further deterioration, restoring a stock or ecosystem in x years, etc.) Despite these and other pitfalls, expert advice submitted to decision-makers is clearly one source of data to be utilized. When expert advice can not be found, or appears so inconclusive that no optimum can reliably be inferred, a fall-back strategy may be to look for some official declaration of a joint goal or purpose. Some, but not all, conferences provide such a declaration (e.g. "eradicate hunger in ten years"). Whenever such a target is explicitly formulated, it may serve as a point of reference. It should be recognized, though, that the relationship between such a target and the "objective" optimum is by no means clear. This indicates that the latter strategy should be used with great caution, and that scores based on different strategies can not be used interchangably.

Recognizing that even with an elaborate manual the analyst will have to rely heavily on subjective and perhaps even somewhat impressionistic judgment, a strong case can be made for subjecting our own scores to some "external" test of reliability. Such a test may be organized as follows: Ask a sample of about ten civil "experts" (e.g. civil servants, scholars) who know the issue well to score the regime in terms of relative improvement and distance to the "collective optimum" (these notions must, of course, be explained in some detail). The instrument may be a five or ten point scale. Compute the average score, and compare the score itself, as well as the ranking derived from scores for a set of cases, to your own[10]. Admittedly, such a procedure would be vulnerable since the referees would not themselves *compare* cases (or, at most, compare only a few cases). Using their scores as the basis for ranking cases therefore implies a strong assumption about inter-referee standardization of evaluation scales. This problem is, though, quite similar to one that any research team will have to face in its internal proceedings.

[10] Whenever the referees disagree substantially among themselves, or the ranking derived from their scores differ significantly from your own, further examination of the case record seems required.

5. CONCLUDING REMARKS

Findings from some of the preliminary case-studies done by Wettestad & Andresen (1991) and by Miles (1991) clearly indicate that the scores we end up with will sometimes depend on the exact definition of "effectiveness" that is applied. This observation raises two important questions: First, does it make sense to try to develop some *composite* or *aggregate* score? This is itself a complex question. My own view can be summarized as follows: (1) If we are talking about using different operational *indicators* for the same theoretical concept, computing some aggregate score basically means constructing an index. This may certainly be a sensible thing to do, at least when the indicators included are believed to capture different aspects of the phenomenon we are trying to get at. (2) Aggregating scores across different basic concepts is a straightforward operation *only* as long as one case *dominates* another. For example, referring to figure 1 (p 6), I can see no problem in rating cases in the upper right hand category as "more effective" than those in the lower left hand cell; in terms of my two criteria the former strongly dominates the latter. I would also be prepared to rate the two remaining cells as falling somewhere in-between these two extremes; they can both be seen as weakly dominated by cases in the upper left cell, and do themselves weakly dominate cases in the lower right hand category. In order to produce some sensible aggregate score where one case does not dominate another, we would have to be able to translate *units* of "relative improvement" into *units* of "distance to the collective optimum". I can see no firm basis for performing such an exercise.

Second, can the same model or set of independent variables be used to account for variations in effectiveness - *irrespective of which definition we adopt*? Can, for example, the same model that is used to explain variations in what Young (1991) refers to as "effectiveness as problem solving" equally well account for variations in what he calls "process effectiveness" or "constitute effectiveness"?[11] The wider the range of definitions, the more less

[11] "Process effectiveness" is defined by Young as a matter of "..the extent to which the provisions of an international regime are implemented in the domestic legal and political systems of the member states as well as the extent to which those subject to a regime's prescriptions comply with their requirements". A regime is effective in "constitutive" terms if "..its formation gives rise to a social practice involving the expenditure of time, energy, and resources on the part of its members". The latter may seem a counterintuitive notion of "effectiveness"; a somewhat unkind interpretation would be that the greater the social costs of operating a

warranted seems to be such a sweeping assumption. The question seems, though, pertinent even with regard to the more limited range of options suggested in this paper.

regime, the more "effective" it is.

REFERENCES

Wettestad, Jørgen & Andresen, Steinar (1991). The Effectiveness of International Resource Cooperation. Lysaker, The Fridtjof Nansen Institute, *FNI Research Report, R:007-1991.*

Aggarwal, Vinod (1985). *Liberal Protectionism: The International Politics of Organized Textile Trade.* Berkeley: University of California Press.

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

Haggard, Stephan & Simmons, Beth A. (1987). "Theories of international regimes". *International Organization*, vol. 41, no. 3, pp. 491-517.

Jacobson, Harold K. & Kay, David A. (1983). "Conclusions and Policy". Pp. 310-331 in D.A. Kay & H.K. Jacobson (eds), *Environmental Protection: The International Dimension.* Totowa, N.J.: Allanheld, Osmun.

Miles, Edward L. (1991). "Regime Effectiveness in Three Cases: Satellite Telecommunications, High Seas Salmon in the North Pacific, and Sea Dumping of Low-Level Radioactive Waste". Unpublished paper, prepared for the "Regime Summit", Dartmouth College, November 1991.

Puchala, Donald J. & Raymond F. Hopkins (1982). "International regimes: lessons from inductive analysis". *International Organization*, vol.36, no. 2, pp. 245-275.

Sebenius, James K. (1983): "Negotiation arithmetic: adding and subtracting issues and parties". *International Organization*, vol. 37, no. 3, pp. 281-316.

Young, Oran R. (1991). "On the Effectiveness of International Regimes: Defining Concepts and Identifying Variables". Unpublished working paper (draft).

Zacker, Mark W. (1987). "Trade gaps, analytical gaps: regime analysis and international commodity trade regulation". *International Organization*, vol. 41, no. 2, pp. 173-202.

CICERO

Center for
International
Climate and Energy
Research - Oslo

A Policy Research Foundation
of the University of Oslo

6 April 1995

LIST OF PUBLICATIONS (1994-1995)

CICERO WORKING PAPERS

Working Paper 1994:1
Gottinger, Hans W.: *Principal-Agency Control of Wastes*
February 1994

Working Paper 1994:2
Matlary, Janne Haaland: *Extending the Two-Level Metaphor to the European Union: The Problem of Conceptualization*
March 1994

Working Paper 1994:3
Matlary, Janne Haaland:*The Role of the Commission in the European Union*
March 1994

Working Paper 1994:4
Andresen, S., Skodvin, T., Underdal A. and Wettestad, J.: *"Scientific" Management of the Environment? Science, Politics and Institutional Design*
June 1994

Working Paper 1994:5
Gottinger, Hans W.: *Greenhouse Gas Economics and Computable General Equilibrium*
June 1994

Working Paper 1994:6
Aunan, Kristin: *Protecting health and environment from air pollution - The role of quantitative risk assessments*
August 1994

Working Paper 1994:7
Gottinger, Hans W.:*An Economic Approach to Monitoring Pollution Accidents*
August 1994

Working Paper 1994:8
Aaheim Asbjørn: *State Dependent Pollution Control and the Choice of Policy Instruments*
September 1994

Working Paper 1994:9
Ringius Lasse: *Regime Lessons from Ocean Dumping of Radioactive Waste*
September 1994

Working Paper 1994:10
Löfstedt, Ragnar E. ,Ringius, Lasse: *Danish Perspectives on Transboundary Environmental Risks: An Example from Copenhagen*
October 1994

Working Paper 1994:11
Aaheim, Asbjørn: *Evaluation of Uncertain Projects under Joint Implementation.*
November 1994

Working Paper 1994:12
Hagem, Cathrine: *Joint Implementation under Asymmetric Information and Strategic Behaviour.*
March 1995

Working Paper 1994:13
Matlary, Janne H.: *Towards Constructing a Common Energy Policy in the European Union: How Can we Theorise About the Actor Role of the Commission?*
November 1994

Working Paper 1994:14
Skodvin, Tora: *Structure and Agent in Scientific Diplomacy Institutional design and leadership performance in the science-politics interface of climate change.*
November 1994

Working Paper 1994:15
Hernes, Helga: *UNCED-prosessen og Nordens rolle.*
December 1994

Working Paper 1995:1
Ringius, Lasse: *The Environmental Action Plan Approach: A Milestone in Pollution Control in the Baltic Sea.*
January 1995

Working Paper 1995:2
Aaheim, Asbjørn H.: *Aspects of burden-sharing of common action to mitigate climate change.*
March 1995

Working Paper 1995:3
Ringius, Lasse, Holm, J., Klemmensen,B.: *Denmark's Environmental Aid to Central and Eastern: Europe: Present and Future.*
April 1995

CICERO POLICY NOTES

Policy Note 1994:1
Gottinger, Hans W.: *Some Policy Issues of Greenhouse Gas Economics*
January 1994

Policy Note 1994:2
Isaksen, Ivar S. A.:*Oppdatering av verdier for "Global Warming Potentials (GWP)" i forbindelse med IPCC prosessen*
February 1994

Policy Note 1994:3
Killingland, Tore: *Den Nord-Amerikanske miljøbevegelses syn på Joint Implementation som virkemiddel for å redusere utslipp av klimagasser*
March 1994

Policy Note 1995:1
Selrod, Rolf, Ringius, Lasse and Torvanger, Asbjørn : *Joint Implementation - a promising mechanism for all countries?*
January 1995

CICERO REPORTS:

Report 1994:1
Fuglestvedt, J. S., Isaksen, I.S.A., Wang, W.-C.: *Direct and indirect global warming potentials of source gases.*
March 1994

Report 1994:2
Pettersen, Marit: *Energy Efficiency: A Possible No Regrets Option for Curbing Greenhouse Gas Emissions.*
August 1994

Report 1994:3
Isaksen, Ivar S.A.:*The State of the Ozone Layer: A 1994 Science Update.*
August 1994

Report 1994:4
Selrod Rolf and Torvanger, Asbjørn: *What Might be Minimum Requirements for Making the Mechanism of Joint Implementation under the Climate Convention Credible and Operational .*
January 1994

Report 1994:5
Fuglestvedt, J.S., Jonson, J.E., Wang, W.-C. and Isaksen, I.S.A. : *Responses in Tropospheric Chemistry to Changes in UV Fluxes, Temperatures and Water Vapour Densities.*
November 1994

Report 1994:6
Torvanger, A., Fuglestvedt, J.S., Hagem C., Ringius, L., Selrod, R. and Aaheim, H. A.: *Joint Implementation Under the Climate Convention: Phases, Options and Incentives.*
November 1994

Report 1994:7
Selrod, R., Sørensen, E.: *World Bank Appraisal Mission to Poland May 31 to June 11, 1993. The GEF Coal-to-Gas Conversion Project.*
June 1993.

Report 1994:8
Selrod, R., Skjelvik, M.: *World Bank Appraisal Mission to Mexico. The GEF - ILUMEX Project.*
October 1993.

Report 1995:1
Moreira, J. R., Corrêa, F., Kasa, S., Selrod, R. and Torvanger, A.: *Fuel Substitution in Amazonia - Feasibility Study to Investigate Future Options for Joint Implementation Projects Between Brazil and Norway.*
January 1995.

Report 1995:2
Seip, H.M., Aunan,K., Bándi,G., Haugland,T., Matlary, J. Haaland, Szlávik, J., Tajthy,E., Tajthy,T. and Aaheim, H.A: *Climate, Air Pollution and Energy in Hungary.*
February 1995.

Report 1995:3
Hernes, Helga, . Dalfelt, A., Berntsen,T., Holtsmark,B., Næss, L. O., Selrod, R. and Aaheim, A.: *Climate Strategy for Africa.*
February 1995

Report 1995:4
Ringius, Lasse, Holtsmark,B., Matlary, J.H. and Sørensen,E. S.: *Consistency of World Bank Country Assistance with Client Country Commitments under FCCC: A Czech Republic, Poland, and Hungary Case Study.*
March 1995

Report 1995:5
Selrod, R., Torvanger, A., Karani, P. and Ojwang, J. B.: *Joint Implementation under the convention on climate change. Opportunities for Development in Africa.*
March 1995