



Center for
International Climate
and Environmental
Research - Oslo

Working Paper 1997:11

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ISSN: 0804-452X

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1. Introduction

The climate negotiation process is probably the most complex international environmental negotiation process to date. A high number of actors and issues are involved. In order to increase the understanding of the political feasibility of different options and solutions developed within these negotiations, it is useful to apply a relatively simple and workable methodological approach in order to “score” and keep oversight over the key positions of key actors on key issues.

An interesting approach is the methodology developed in R.L. Friedheim’s *Negotiating the New Ocean Regime* which analyzes the Law of the Sea negotiations that took place from the late 1960s up to the early 1980s. Hence, the first part of the paper discusses key ingredients of this approach: decomposition of complex international negotiation, issue-variables, policy alternatives/policy themes, underlying themes, scaling technique and scaling of policy alternatives. This methodology is found to be useful for the purpose of research projects such as the “Modeling International Negotiations” (MIN) project.¹ Some shortcomings of this methodology are also identified.

The second part of this paper discusses the extent to which, and how, this methodology could be applied in the case of global climate change and the global climate negotiations.

¹ This working paper is written in the context of the research project “*Modeling International Negotiations: Exploring the Settlement Range in the Global Climate Change Negotiations*” (the “MIN-project”). Arild Underdal, CICERO and Department of Political Science, Oslo University, is leading this project.

2. The general approach in Friedheim's *Negotiating the New Ocean Regime*

Introduction

The social phenomenon, or process, modeled in R.L. Friedheim *Negotiating the New Ocean Regime* is called, in Friedheim terminology, parliamentary diplomacy. Somewhat simplified, he addressed the problem "whether 150+ stakeholders can negotiate or interact concerning 150+ issues and achieve a positive-sum outcome".²

Parliamentary diplomacy, an essential notion for Friedheim's study, refers to the type of negotiation that took place in case of the Third United Nations Conference on the Law of the Sea (UNCLOS III) negotiations in the period 1967-1982. This characteristic style of international negotiation started to develop during earlier Law of the Sea negotiations. Unlike negotiations in classic bilateral style, it was then necessary to form coalitions and negotiating groups in order to negotiate, and committees and working groups were given part of the work. "The decision process of UNCLOS I and UNCLOS II was a curious blend of features associated with international negotiation (parties were not bound without their consent) and with domestic legislatures (decisions were taken by majority vote, and interests aggregated through coalitions)".³

One important difference between the UNCLOS I/II and UNCLOS III is that parliamentary diplomacy operates under the rule of unanimity. The bargaining techniques resemble to some extent those used in the United Nations General Assembly. In describing "the essence" of UNCLOS III, Friedheim writes: "UNCLOS III was a contract negotiation resulting in a formal convention that may be binding upon most nation-states of the world for years to come...Its policies were intended to govern human uses of 71 percent of the earth's surface [i.e. the oceans]. Although considerable negotiating for effect took place over the 15-year encounter, more on some issues than others, the principal outcome sought was not recommendations, resolutions, or advisory opinions, but rather contracts concerning state power, jurisdiction and wealth".⁴

Friedheim underlined that he followed an inductive approach: there were no pre-established theory or predictions to be tested. Rather, the study attempted to systematically collect data and to model the negotiations. The methods may, he pointed out, show light upon some regularities but these should be distinguished from causal explanations. Strictly speaking, no causal explanations were proved in the study.⁵

Parliamentary Diplomacy

Parliamentary diplomacy (PD), or large-scale multilateral negotiations, are extremely complex - "a process in flux" - and combines elements of negotiation with elements of

2 Robert L. Friedheim, *Negotiating the New Ocean Regime* (Columbia: University of South Carolina Press, 1993), p. 41.

3 Ibid p. 23.

4 Ibid p. 42.

5 Ibid p. 42-43.

legislation. States may decline or defect if they are not content with the negotiation outcome, i.e. it does not make them better off. This is complicated by the fact that parties have mixed-motives. They have at the same time conflicting and common goals: “These goals can best be reached by finding outcomes in which the parties are better off with agreement than without. Put another way, the outcomes sought are non-zero-sum or positive sum.”⁶ If positive sum is not achieved, parties may defect.

Friedheim assumed that the role of information is significant, although information is incomplete. Furthermore, the negotiation process is sequential; offers and proposals trigger counteroffers and counterproposals. “In short, parliamentary diplomacy has parties, values, movement, and outcomes”.⁷ There is great emphasis on consensus in a PD bargaining system, and comparable little emphasis on voting because the unsatisfied may choose to defect or refuse a decision if they are not content with a negotiation outcome.

To this, Friedheim added a list of special attributes of the UNCLOS III. Seven such attributes were identified. First, the number of negotiators was large (150+) and their values and interests were not identical. Second, the list of issues to be negotiated was very long (150+). Third, interactions were based on a formal structure consisting of elected leadership, plenary sessions, main committees and formal working groups. Fourth, the decision process was guided by formal rules, each state had one vote. Fifth, there existed a number of informal procedures for managing the interactions of states - bilateral groups, contact groups, compromise groups, and similar, were established. There was great importance placed on constructing package deals, as opposed to agreements on single issues, that could attract the support of a large number of states. As already mentioned, it was seriously important to reach agreement through consensus. Sixth, issues to be negotiated were complex, also in a technical and scientific sense, and various specialist groups were involved as advisors to generalist delegates. Continuity, finally, was a characteristic feature of the UNCLOS III; it took negotiators 15 years to produce a convention for signature.

Complexity and Disaggregation

Due to practical reasons, Friedheim’s team could not deal with negotiations among 150+ states and stakeholders on 150+ issues. They instead dealt with 20-25 key issues. It was necessary (1) to understand the individual issues and the position of participating states on these issues, especially over time; (2) to examine the linkages between the issues and understand the aggregation between issues and parties; (3) to understand the coalitions that were created; (4) to forecast packages and trade-offs and the overall package (the Convention), and compare these to the preferred packages of major states and participating groups; and (5) present the “best” package “that might emerge if states had “better” knowledge of their own and others’ positions”.⁸

To model negotiation of UNCLOS III, it was preferable, if not necessary, to use information that could be manipulated on a computer, drawn from primary sources, and

6 Ibid pp. 44-45.

7 Ibid p. 45.

8 Ibid p.49.

collected in a reliable manner. Associated coders were searching for statements of preferences by delegates on the major negotiation issues. Both simple statements of preferences and contingent statements (“My state would accept x if the conference put y in the agreement”) were collected. Distinctions were made between various types and degrees of preferences were made. The content analysis produced over 40,000 observations of preferences of all participating states on 20 to 25 key issues!

Types of data and the creation of issue variables

Two kinds of interest data were collected; dichotomous and continuous. The dichotomous data category was of the either-or kind; e.g. either a state was member of the G-77 group or it was not. While some data were naturally dichotomous, other data were dichotomized by establishing a threshold value for group membership. Continuous variables simply used unmanipulated aggregate data - GDP, area of continental shelf, etc. The project collected data from standard reference works.

Friedheim’s team created a number of issue-variables.⁹ The first step in creating issue-variables was making a list of all policy alternatives (they were called policy themes) that were proposed for a given issue.¹⁰ All policy alternatives found in the documents used in the Friedheim project were included.

The next step was to identify which dimensions that differentiated them from each other. Such dimensions might, for example, reflect the implicit conceptual framework or viewpoint of countries.

Once all underlying themes had been determined, a complete list of themes was established. The list would place the most extreme theme at one end of the list, the next most extreme theme was placed next and so forth, until all themes has been arranged in the list. In this way the policy continuum along the specified dimension was created.

To illustrate, in the course of the project the Friedheim team would examine the issue, “Who shall control scientific research in the coastal zone?” The complete list of themes could look like:

- Coastal state consent required, but given after international conditions are met
- Access to information in return for scientific freedom in the zone
- Coastal state control of research and the right to suppress research results
- Unrestricted research in the coastal zone
- Consent at the discretion of the coastal state
- Coastal state has a right to be notified, to participate and to gain access to scientific research in its zone.

9 “Issue-variables are created through a process of scaling whereby themes relating to a particular issue are first ordered along some dimension of the negotiations and then assigned values”. Robert L. Friedheim, “Forecasting Outcomes of Multilateral Negotiations: Methodology”, p. 12 Prepared for Office of Naval Research, Department of the Navy, Arlington, VA. January 1977.

10 “For our purposes, a theme is a statement of policy on a single negotiating issue by an official country representative or, in the case of diplomatic cables, a policy statement attributed to a country or its representatives by the author of the cable”. Robert L. Friedheim, “Forecasting Outcomes of Multilateral Negotiations”, p. 9.

The underlying dimension along which these themes could be arranged was the amount of coastal state control over research in its zone. Taking this as the underlying dimension, the themes would be ordered in the following way:

- Unrestricted research in the coastal zone
- Access to information in return for scientific freedom in the zone
- Coastal state has a right to be notified, to participate and to gain access to scientific research in its zone.
- Coastal state consent required, but given after international conditions are met
- Consent at the discretion of the coastal state
- Coastal state control of research and the right to suppress research results

In this case the themes would be ordered from minimum to maximum state control.

Modeling the Issues

For the Friedheim project, it was necessary to model conflict on issues under negotiation and find out if states managed to find an acceptable collective outcome through the negotiation process. As mentioned above, it was necessary to understand the underlying concept that framed the issue under negotiation as well as the particular proposals that states put forward to solve the issue.

“Conflict issues” were created by scaling of the positions of states along a spectrum with an underlying dimension. Fig 1. gives an example of a conflict issue in international resource allocation and management.

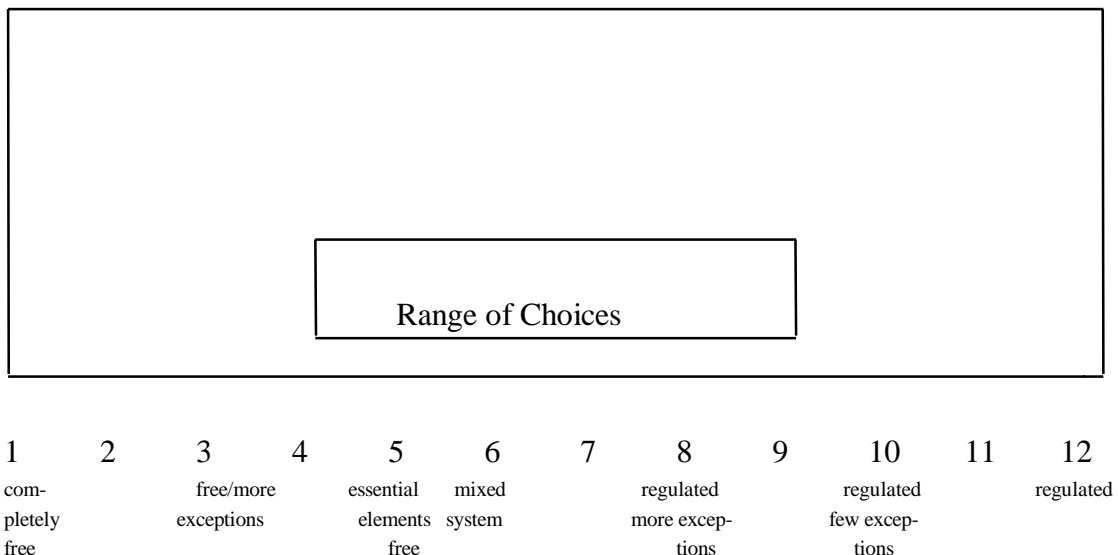


Figure 1. Scaling of bargaining preferences.

Figure 1 shows the conflict issue of the degree of control a rightsholder might be able to exercise over other possible rightsholders in the area of negotiation.¹¹ No control is ranked as 1, and complete control is ranked as 12. Fallback positions for those advocating complete freedom are located at 3. Negotiators starting out with a preference for regulation might fall back to positions ranked as 8 or 10. In the middle (rank 6) is a mixed system of a compromise between freedom and regulation.

As can be seen from Figure 1, rank numbers may not be used when it is thought that there is more than a mere order involved in the scale. For example, the figure shows that the coders thought that the loss of policy if accepting some exceptions to a completely free policy (rank 1) were better represented by rank 3 than by rank 2. This is an example of what the team referred to as “policy spacing”. Note that the scaling was in accord with the view of the project’s U.S. government clients.

The scales that were used varied. For some issues, the scale was 1-20, but other issues were scaled 1-10, 1-12, 1-15, 1-17, 1-20, and 1-24. A mark was skipped (left unassigned), for example mark 2, when it was thought that there was a substantively significant position between 1 and 3, or when no country’s position was ranked 2 but it was thought that there existed a position (although there was no state that had suggested the position) between 1 and 3.

Thus there could be more than one scale value between policy preferences. The first theme was given the scale value of 1. Returning to the above example, scaling might be 1, 2, 4, 8, 10 and 12.

<u>Policy preferences</u>	<u>Scale value</u>
Unrestricted research in the coastal zone	1
Access to information in return for scientific freedom in the zone	2
Coastal state has a right to be notified, to participate and to gain access to scientific research in its zone.	4
Coastal state consent required, but given after international conditions are met	8
Consent at the discretion of the coastal state	10
Coastal state control of research and the right to suppress research results	12

The scaling depends on the nature of the individual issue.

Understanding the Position of States on Issues

The Friedheim team placed all states on the scaled variables. Referring to Figure 1, if a state said that it supported completely free use of the oceans, its national position was ranked 1. However, states could have a fundamental preference for one or more of the core concepts defining an issue, and might make conditional statements indicating

¹¹ Friedheim used a range from 1 to 20 in this case. Due to limited space, we use instead the range from 1 to 12.

willingness to accept a fall-back position. In such cases, the team would calculate the nation position as a weighted average. This was done as follows:

$$\text{National Score} = \frac{\text{THEMES (Rank of Theme)} \times (\text{Number of Mentions})}{\text{Total Number of Mentions}}$$

To illustrate, if a state five times mentioned rank 1 and mentioned rank 5 twice, the national score was 2.1.¹²

Movement over Time

Friedheim recorded where participating states stood on major issues. It was possible to find patterns of state preferences at various points in time, and patterns of state preferences and the state of play at different point in time were compared. This made it possible to track the movement of major negotiating groups over time.

The Friedheim approach - Towards application in the Global Climate Change Case

In general, the scaling of bargaining preferences seems to be a useful way to analyze key issues in international negotiations, including the international negotiations aimed at preventing global climate change. This is due to several similarities between the UNCLOS case and the global climate change case. Similar to the UNCLOS case, the global climate change negotiations are characterized by a high number of negotiators, multiple issues to be negotiated, a number of formal and informal procedures for managing interactions of states, efforts to construct package deals, a fundamental consensual approach, and complex scientific and technical issues.

To adapt and apply the Friedheim methodology to the case of the global climate change negotiations, it is necessary, first, to create issue-variables, and, second, to score (the positions of) states along issue-variables. The first step involves (1) listing all policy alternatives (policy themes) on a particular issue, (2) identifying the underlying theme and figuring out its extreme values, and (3) scaling of the policy alternatives. After this step is completed, the next step is scoring of the (the positions of) states along the issue-variables.

Despite its usefulness, the procedure used by the Friedheim team suffers from some shortcomings. Consider the case where a country participating in the climate change negotiations makes a very strong statement in support of policy alternative x but does not repeatedly mention policy alternative x. In this case, policy alternative x seemingly would be scored relatively low. This way of measuring would therefore be faulty. Another important issue, the procedure adopted by the Friedheim team is extremely resource intensive. As already mentioned, Friedheim's team processed over 40,000 observations of preferences of all participants on more than 20 key issues! This procedure seems neither appropriate nor feasible for the purpose of the MIN project.

¹² $(5 \times 1 + 2 \times 5) \approx 2,1$

Nonetheless, the creation of issue-variables and scaling of policy preferences could be combined with other more appropriate methods of inferring national positions. With this caveat, a tentative application effort is carried out in the following section.

3. Key Climate Issue-Variables

What, then, would be suitable issues? What is at all an "issue" in the climate change policy context? We intend to distinguish between three overall main dimensions, namely targets, measures, and degree of bindingness. Moreover, both targets and measures imply identifying several sub-issues. The conclusions are based upon our analysis of significant issues. As mentioned earlier, Friedheim's scaling of issues was in accord with the view of the project's U.S. government clients. While our analysis in some cases might concur with how negotiators think about these issues, negotiators' views are not taken into account in the analysis.

A short description of the approach followed to analyzing issues is in place.¹³ The approach basically consists of four steps. As a first step, we identify whether "natural" extreme values exist. For some issues, such values are easily identifiable. For example, "comprehensiveness" can be conceived of as ranging from one greenhouse gas, most intuitively CO₂, to all greenhouse gases. In other cases, however, it might not be possible to identify such exogenously given extreme values.

The second step will be to rank actual positions taken by states. This first ranking locates positions only in relation to each other, on an ordinal scale.

In the third step, it is useful to identify and rank other plausible positions. There may be an infinite number of conceivable positions, but only some of these are plausible. If plausibility is hard to determine, the range of potential positions may have to be truncated to yield a limited number of options. Once identified, they should be ranked (1) in relation to each other, (2) in relation to existing positions, (3) in relation to extreme values (if any).

The fourth step is to rank distance. The scale we are aiming for seems to be a second-order ordinal scale, meaning that it invites us to perform ordinal measurement operations in two steps. First, we determine whether one position should be ranked above or below another along a particular dimension. Second, we ask ourselves whether the substantive "distance" between two positions (A and B) is smaller, larger, or roughly equal to that between two other positions (B and C). The latter question may in some cases be hard to answer – and then we would opt for the default option, which would be to say that distances are equal. But in other cases we will probably conclude that it makes sense to "rank distances".

13 The above draws heavily on a note written by Arild Underdal. Date 17 September 1997.

Targets

In our analysis of targets, we suggest to distinguish between “comprehensiveness”, “emission level”, and “target differentiation”.

Comprehensiveness

The issue of "comprehensiveness" has two main components. First, comprehensiveness refers to the *number of greenhouse gases* (GHGs) to be regulated internationally. This sub-dimension has as its extreme values "full greenhouse gas comprehensiveness", i.e. including all known GHGs, also those about which we have less than complete knowledge, and "no comprehensiveness", i.e. only one greenhouse gas. CO₂ is the gas that intuitively would be considered the “first” greenhouse gas (see Fig 2).

As a starting point and reference framework, it will be useful to build on the analyses of climate or greenhouse gases prepared by the Intergovernmental Panel on Climate Change (IPCC). The most relevant source gases are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), perfluorocarbons (PFC), sulfur hexafluoride (SF₆) and hydrofluorocarbons (HFC). The IPCC has calculated Global Warming Potentials (GWPs) for more than 25 climate gases, among which are alone 15 HFCs.¹⁴ Should one later decide to use GWP estimations, it would be preferable to use 100 years lifetime in a first phase. Thus, while there is some discussion of the usefulness of GWPs, as well as the best choice of lifetime, presently the established practice is to calculate GWPs for 100 years periods.

The second main aspect of comprehensiveness refers to the issue of the so-called “sinks”. Atmospheric CO₂ concentrations are not only influenced by CO₂ emissions, but also by the uptake of CO₂ in “carbon sinks” like forests and the ocean. From a policy perspective, it is the role of “socially induced” processes like deforestation and reforestation that is most relevant. However, the exact role and nature of these processes is shrouded in considerable scientific uncertainty and this has had consequences for their treatment in climate policy process. Leaving this discussion aside in this context, the general point is still valid, namely that “full comprehensiveness” can be seen as a position supporting the inclusion not only of all known GHGs, but also including the role played by carbon sinks.

14 Among other GHGs are carbon monoxide (CO) and NO_x emitted from aircraft. See Tora Skodvin and Jan S. Fuglestedt (September 1997) “A Comprehensive Approach to Climate Change: Political and Scientific Considerations”, *Ambio* 26(6): 351-358.

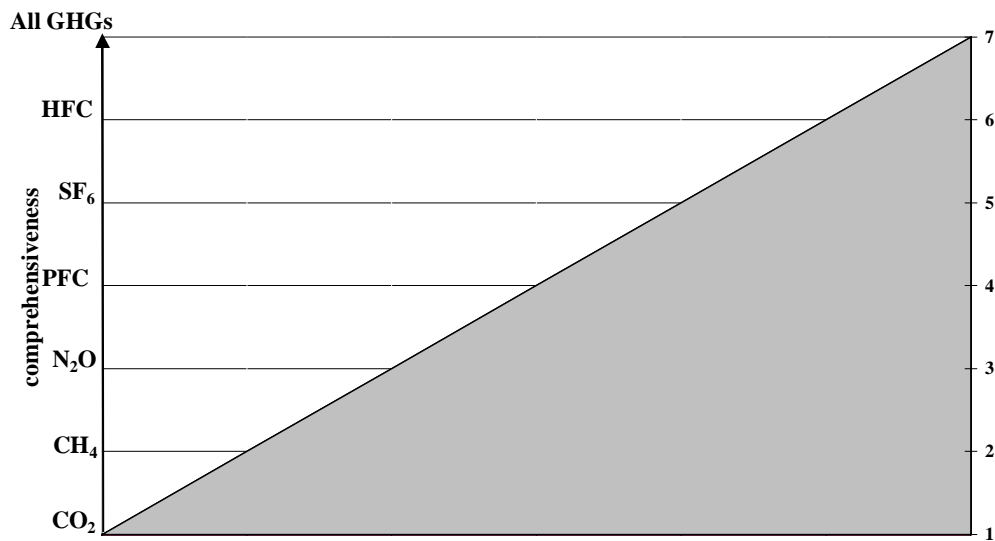


Figure 2. Comprehensiveness in terms of GHGs regulated internationally.

Emission level

The issue of "emission level" is more complex. One objective or logical extreme value would be "one hundred percentage reduction" compared to present emission levels. This would in reality be equivalent to the option of a complete ban on emissions of greenhouse gases. The other extreme, then, would be "no reduction", i.e. no policy intervention intended to affect anthropogenic GHG emissions.

Although these extremes are logical possibilities, they are evidently not useful for our purposes. It is quite unlikely that any country would be in support of one hundred-percentage reduction of greenhouse gases, although the logical possibility exists. It is much more plausible that some countries might take the position that significant reductions are needed. With respect to the other extreme value, it is likely that some countries would be in favor of no curb on GHG emissions, while others might intend to increase their GHG emissions within specific time-frames. In general, a few countries might support some, and perhaps even, considerable emission reductions compared to a certain given level of emissions constituting a reference point. But any such position would be far from a complete, permanent halt on GHG emissions. Other countries will not be in favor of reducing emissions and would be closer to the extreme value "no reduction". Because most countries would be placed near to "no reduction", and no country would be placed near "one hundred percentage reduction", a very skewed distribution would result from choosing logical extreme values.

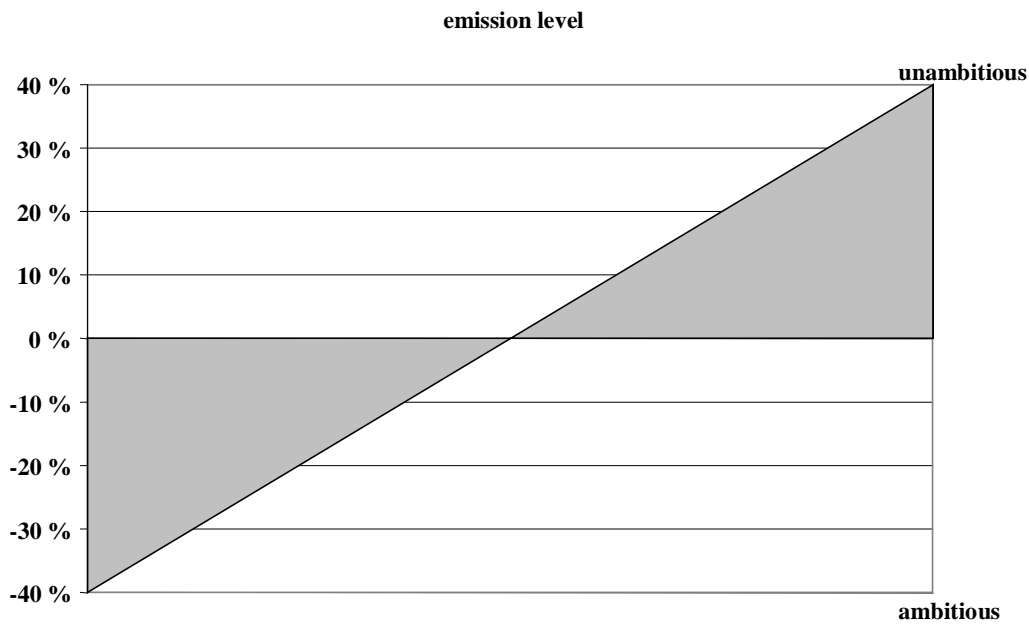


Figure 3. Emission level measured as percentage target in year 2010 (reference year, 1990).

Other possibilities exist. It is possible to compare policies to the various stabilization scenarios reviewed by the IPCC in its Second Assessment Report and elsewhere.¹⁵ This would in particular be uncomplicated when countries or groups of countries present climate policy goals in terms of a particular CO₂ concentration level. The EU, for example, has proposed to stabilize CO₂ concentrations in the atmosphere below 550 ppmv.¹⁶ However, current policy proposals are far from most IPCC emission reduction scenarios and come closer to business-as-usual scenarios. It therefore will be more useful to rank existing positions in relation to each other. Positions should be scaled between "very ambitious" as one extreme value and "unambitious", as the other.

Instead of comparing emission targets with IPCC scenarios, we choose to measure ambitiousness by comparing emission targets to each other (see Fig. 3). The negotiation process itself and climate policy positions of countries will provide a yardstick for comparison and evaluation of ambitiousness. Moreover, the issue of emission level should be combined with a "timetables" dimension to make sense. Emission levels are typically expressed as a percentage reduction at some point in the future relative to a base-year or reference-year. Because of the FCCC's explicit mentioning of returning emissions of greenhouse gases to their 1990 levels in year 2000, year 1990 is regularly used as base or reference year.¹⁷ It therefore is quite natural, and relatively uncomplicated, to use 1990 as a reference year when comparing emission targets.

15 Houghton, J.T., Meiro Filho, L.G., Callendar, B.A., Kattenburg, A. and Maskell, K. (eds.) (1996) *Climate Change 1995: The Science of Climate Change*. Cambridge University Press, Cambridge, UK.

16 Parts per million (10⁶) by volume.

17 See Art 4.2 (b).

Since the 1995 Berlin mandate identifies the years 2005, 2010 and 2020 as “end points” or “target years” in the post-2000 period, countries often establish climate policy target with reference to these particular future points in time. It will also be possible to compare the ambitiousness of different emission levels and reference years, e.g. comparison of a 10 percentage reduction in 2010 with a 15 percentage reduction in 2015, by calculating their consequential annual reductions and comparing these. Finally, sometimes countries might not specify their climate policy target(s). In these cases it will be useful to extrapolate and deduct their (implicit) climate policy target on the basis of analysis of business-as-usual scenarios.

Target differentiation

Next is the complex question of target differentiation. In order to differentiate targets completely, it is necessary to develop an impartial framework consisting of a set of ‘objective’ criteria on the basis of which differentiated national obligations are constructed in a systematic fashion. The framework and the set of criteria must make it possible to construct national obligations reflecting significant dissimilarities and similarities across countries.

The logical extreme values are complete differentiation and symmetrical solutions, respectively. Complete differentiation would imply that national circumstances are fully taken into account in national obligations, whereas non-differentiation or symmetry would mean that national circumstances are not taken into account in any way. Degrees of differentiation clearly also exist. It is possible to moderately differentiate targets by taking into account only one or a few criteria and by making more arbitrary adjustments in what are basically symmetrical targets. Completely differentiated targets, in contrast, would reflect proportionalities among countries and would be developed through quantitative comparisons and aggregations and would use well-defined objective criteria and quantitative indicators for international comparison of countries and national targets.

One way to interpret and operationalize differentiation might be that dissimilar climate targets should perfectly match dissimilar abatement costs; however, other ways of operationalizing the concept of differentiation exist. It will be necessary to examine carefully the content of policy proposals to check to what extent they actually would achieve full differentiation, are intended to lessen the burden on the country suggesting differentiation, or achieve other goals. There might be a great discrepancy between supporting differentiation in general and actual cost implications of specific proposals for differentiation.

As a first step, it will be established whether a country at all supports differentiation. If it does, it will be necessary to identify the particular kind of differentiation the country favors. The FCCC and the Berlin Mandate will provide a useful starting point for evaluating countries’ position regarding differentiation.¹⁸ According to the Berlin Mandate, when OECD countries develop climate policy targets and strengthen their commitments, they should do this in such a way that these are “taking into account the differences in these Parties’ starting points and approaches, economic structures and resource bases, the need to maintain strong and sustainable

¹⁸ For an analysis of issue of differentiation and the FCCC and the Berlin Mandate, see Lasse Ringius and Asbjørn Torvanger, “Sharing the Costs Equitably”. Manuscript. March 1997.

economic growth, available technologies and other individual circumstances”.¹⁹ In fact, the Berlin Mandate provides a list of agreed-upon criteria that can be used to evaluate the degree to which countries are in favor of differentiation and to compare their different operationalizations and interpretations of differentiation.

The second step will be a comparison of the differentiation criteria countries suggest, irrespective of those laid out in the FCCC and the Berlin Mandate. This will imply identification and comparison of criteria suggested by countries. Positions will be compared and ranked according to degree or level of ambitiousness. In-between positions will be examined for, such a differentiation within a well-specified group of countries (for example developing countries).

As a third step, it will be useful to compare proposals for differentiation on the basis of specific indicators supported by countries. France, for example, has advocated using CO₂ per capita as a fairness indicator when determining national obligations. There are a high number of such indicators that countries might choose from.²⁰ After completing this three-step approach to the analysis of differentiation, the extreme values with regard to differentiation will be identified and policy alternatives will be scaled (see table 1).

Symmetrical solutions				Complete differentiation				
1	2	3	4	5	6	7	8	9
Standardized solutions all countries	Standardized solutions all industrialized countries, standardized solutions all developing (and perhaps other groups of) countries	Standardized solutions all industrialized countries	Standardized solutions all industrialized countries, with exceptions for groups of countries	Mixed system of standardized and differentiated solutions in industrialized countries	Moderate differentiation all industrialized countries, with exceptions for groups of countries	Complete differentiation all industrialized countries, with exceptions for groups of countries	Moderate differentiation all countries	Complete differentiation all countries

Table 1: Level of differentiation.

Differentiation is a complex variable and has caused considerable controversy in the climate negotiations. It is likely that countries often make their position(s) dependent upon or contingent on certain actions being taken by other countries. To start with, we will code if countries are in favor of, against, or take an “in between” position. If they are in support of differentiation, which kind(s) or mix of conditions do they introduce (positive/negative; one-sided/mutual; specific/general; others)?

¹⁹ Article 4.2.

²⁰ See, for example, Lasse Ringius, Asbjørn Torvanger, and Elisabeth Meze (1996), “Climate Policy, Burden Sharing and the Nordic Countries”. *TemaNord 1996: 572*. (Copenhagen: Nordic Council of Ministers, 1996).

Measures

With regard to measures we can distinguish, at least analytically, between two key sub-dimensions termed "measure flexibility" and "implementation context". In practice, there may be interplay and connections between these issues. For instance, the US has indicated that it is more willing to consider internationally harmonized measures if the general implementation context is international and open.

Measure flexibility

Measure flexibility has to do with degree of national freedom in the choice of policy instruments in the implementation phase. A specific example is the debate on a possible common energy or carbon tax. With regard to this dimension, there are *logical* extreme positions. Hence, at the one end of the continuum, there is the position of "full national freedom" in choice of policy instruments to attain common emission targets. At the other end of the continuum, there is the position of "no national freedom" in choice of policy instruments. In other words, in the latter case, the international agreement specifies all policy measures that should be utilized nationally to attain common targets. Although this position is clearly more analytically interesting than practically relevant, in a way, the international banning of a special activity like for instance marine dumping may perhaps be seen as an example of an international regulation which more or less determines type of national policy action. However, the total ban option is of little practical interest in the context of climate change. Emission reduction targets automatically open up for differing national policy routes and choice of measures.

What are then thinkable intermediate positions? A first candidate is the position where all acceptable policy instruments are specified, but states are allowed to choose their own package or mixture of instruments within the "acceptable set". In other international environmental contexts, annexes specifying what qualifies as "Best Available Technology" in a specific field may be a possible practical example. A second distinct possibility is the specification of one or more policy instruments that should categorically be utilized nationally. Within the climate context so far, in addition to a specific carbon tax, options launched have included taxation of air travel/removal of tax exemption for aviation fuel, and fuel efficiency standards for passenger cars. A further issue here is of course the formulation of such an international measure requirement. For instance in the case of a carbon tax, only stating that the establishment of such a tax is necessary allows more freedom than further specification of the *level* of such a tax.

Then, how to rank these intermediate positions? Tentatively, we would suggest to regard the specification of one or more compulsory national instruments as a further restriction of national freedom than specifications with regard to the "acceptable set". Hence, at least four major positions may be indicated. Given the nature of this issue, it is hard to be more specific with regard to the distance between these major positions. Hence, the following scale may be indicated (see table 2):

MEASURE FLEXIBILITY						
1	2	3	4	5	6	7
Full national freedom		Specified 'acceptable set'		Specified measure(s)		No national freedom

Table 2: Level of flexibility.

Implementation context

Implementation context has to do with the geographical context for implementation measures. Also in the case of this dimension, “natural” extreme values can be identified. At the one end of the continuum, there is the position of "national/unilateral implementation context". In other words, all measures to fulfil international targets have to be carried out within each state. The other end of the continuum then becomes "full international implementation context", with no geographical limits on the measures nation states undertake, and hence opening up for several types of multilateral measures. Options introduced into the negotiations include coordinated measures, such as a carbon/energy tax, joint implementation (JI) (where countries with high GHG abatement costs finance low-cost climate measures related to sources or sinks in developing countries and formerly centrally planned economies), and establishment of an international system for trading emissions quotas or permits. There are clearly intermediate positions. States may accept some types of international measures, like for instance JI, but may oppose the establishment of an international trading scheme. Generally, such a position may be classified as a “partly international” implementation context. Is a further specification possible? We have a feeling that support for JI, but not for trading is a less “international” position than the other way around, as an international trading system can probably be seen as an institutionally more demanding and “open in all directions” approach than the JI approach. However, this is clearly debateable. Given the character of the issues, we find it most reasonable just to postulate an equal distance between the positions. This leaves us with the following picture (see table 3):

IMPLEMENTATION CONTEXT								
1	2	3	4	5	6	7	8	9
'Uni-lateral' impl. Context		Co-ordinated measures		Support for JI		Support for trading		Fully inter-national impl. context

Table 3: Implementation context.

Legal ambitiousness

Negotiators express cooperative ambitiousness not only through the *content* of targets and measures, but also through the *form* of the commitments; what we suggest to term “legal ambitiousness”. A central dimension here is of course the question of *legal status*. Other

international environmental regimes like the acid rain regime and the North-East Atlantic/North Sea regime suggest a rough distinction between, on the one hand, legally binding decisions and protocols, and on the other hand, more “politically binding” recommendations and declarations. Legally binding generally means that the commitments have to undergo domestic ratification processes before entering into force. This requirement clearly takes on different meaning in different domestic contexts, with the US as an obvious example of a country with complex and “demanding” ratification procedures. Politically binding decisions have less demanding formal implications for national follow-up procedures. In practice, however, the picture is less clearcut. For instance research on the North-East Atlantic/North Sea cooperation indicates that the politically binding North Sea Declarations have led to much more domestic political activity in some countries than the legally binding Paris Convention measures.²¹ Within the climate context, this distinction is less interesting in a pre-Kyoto perspective. Although the 1995 Berlin Mandate was open with regard to the type of measure to be established, the 1996 Geneva Declaration adopted at the second conference of the parties (COP-2) clarified that the process was directed towards agreement on legally binding objectives. However, in the case of the adoption of a weak binding protocol in Kyoto, it is very well possible that a smaller group of more ambitious countries agree on a more ambitious political declaration. Moreover, in a longer time perspective, such a development may definitely be possible. Hence, this dimension may then again become much more interesting.

A second possible sub-dimension has to do with *entry into force procedures*, i.e. how many (and in some cases what types of) states which need to have ratified before regime commitments juridically enter into force. For instance, the acid rain regime requires 16 ratifications out of a total number of 40 Parties for protocols to enter into force, while for instance the Montreal Protocol within the ozone regime required at least 11 Parties, together constituting at least two-thirds of estimated global consumption of controlled substances as of 1986, out of a total number of around 25 Parties. Hence, there is a complex ambitiousness discussion here. On the one hand, agreeing on a low number of required national ratifications may be seen as an ambitious position, making the road to entry into force short. On the other hand, although agreeing on a somewhat higher number of ratifications, perhaps including a certain number of countries from different main groups in the negotiations, probably makes the entry into force process more time-consuming, it increases the the overall weight and legitimacy of the process. Hence, the final impact with regard to behavioral impact may be quite open. According to the 1992 Convention, amendments of the Convention require ratification (“instrument of acceptance”) by at least three fourths of the Parties to the Convention.²²

Based on the two sub-dimensions “legal status” and “entry into force procedures”, at the one “ambitious” end of the continuum, one would clearly have the legally binding dimension. The entry into force dimension is tricky, but we would suggest that a position meaning a relatively high number of ratifications (possibly combined with requirements with regard to sub-group representation) should be considered “ambitious”. Conversely, supporting a political agreement would constitute an “unambitious” position. In such a picture, supporting

21 See J.B. Skjærseth (1996), ‘The Impact of Environmental Institutions: Implementing North Sea Pollution Control’. Paper prepared for the 37th annual Convention of the International Studies Association, April 1996, San Diego.

22 Article 15.4.

a legally binding commitment combined with a relatively low number of required ratifications would constitute some sort of middle position (see table 4).

LEGAL AMBITIOUSNESS				
1	2	3	4	5
Legally binding + "high" number of ratifications		Legally binding + "low" number of ratifications		"Politically" binding

Table 4: Legal ambitiousness.

4. Concluding Comments: Towards Empirical Application

The interesting methodology developed by Robert Friedheim in “Negotiating the New Ocean Regime” served as the methodological point of departure for this note, written within the “Modelling International Negotiations” (MIN) research project. The first part discussed key ingredients of this approach; decomposition of complex international negotiation, issue-variables, policy alternatives/policy themes, underlying themes, scaling technique and scaling of policy alternatives. The Friedheim methodology was generally found to be useful for the purpose of the MIN project, focusing on global climate change. Similar to the Law of the Sea negotiations, global climate change negotiations are characterized by a high number of negotiators, multiple issues to be negotiated, a number of formal and informal procedures for managing interactions of states, efforts to construct package deals, a fundamental consensual approach, and complex scientific and technical issues.

Because the Friedheim approach is very resource intensive, a more simple approach was suggested implying creating issue-variables and scoring (the positions of) states along issue-variables. The first step would involve, first, listing all policy alternatives (policy themes) on a particular issue, second, identifying the underlying theme and figuring out its extreme values, and, third, scaling of the policy alternatives. Applied to the case of the global climate negotiations, a first tentative exercise produced three overall dimensions - targets, measures, and legal ambitiousness. Moreover, several sub-issues were identified with respect to targets and measures. With regard to targets, the first sub-dimension was "comprehensiveness", referring to the number of greenhouse gases to be regulated internationally, and the extreme values were "full comprehensiveness", i.e. including all known GHGs irrespective of current knowledge status, and "no comprehensiveness", i.e. only CO₂. The second main aspect of comprehensiveness refers to the issue of “sinks”. The second sub-dimension was "emission level", which would be measured by comparing individual countries' emission targets, and then scaling them between "very ambitious" and "unambitious". Instead of comparing emission targets with IPCC scenarios, the negotiation process itself and climate policy positions of countries would provide a yardstick for comparison and evaluation of ambitiousness. The third sub-dimension was "target differentiation". Conceptually speaking, full differentiation would imply that national circumstances are fully taken into account in national obligations, whereas non-differentiation or symmetry

would mean that national circumstances are not taken into account in any way. A three-step approach to differentiation was suggested. First, it should be established whether or not a country supports differentiation. Second, the differentiation criteria countries suggest should be compared. Third, specific indicators of national circumstances that countries support should be compared.

With regard to measures, a distinction was made between the sub-dimensions "measure flexibility" and "implementation context". First, "measure flexibility" has to do with degree of national freedom when choosing policy instruments in the implementation phase. A specific example is the debate on a possible common energy or carbon tax. With regard to this dimension, the logical extreme positions are "full national freedom" when choosing policy instruments to attain common emission targets and "no national freedom", respectively.

Second, "implementation context" is concerned with the geographical context for implementation measures. One logical extreme value is "national/unilateral implementation context". In other words, all measures to fulfil international targets have to be carried out within each state. The other logical extreme is "full international implementation context", i.e. there are no geographical limitations on the measures states undertake. This could include several types of multilateral measures, such as JI and trading of emission quotas.

Negotiators express cooperativeness not only through the content of targets and measures, but also through the form of the commitments. We suggested to use the term "legal ambitiousness" to capture this significant aspect. A first central dimension is the question of legal status, distinguishing between, on the one hand, legally binding decisions and protocols and more "politically binding" recommendations and declarations, on the other. Legally binding generally means that the commitments have to undergo domestic ratification processes before entering into force. The second suggested dimension was related with entry into force procedures, i.e. how many (and in some cases which types of) states which need to have ratified before regime commitments juridically enter into force. Based on the two sub-dimensions "legal status" and "entry into force procedures", at the one "ambitious" end of the continuum, one would clearly have the legally binding dimension, combined with a requirement for a relatively high number of ratifications (possibly combined with requirements with regard to sub-group representation). Conversely, supporting a political agreement would constitute an "unambitious" position.

We are at this point approaching the more empirical phase of the MIN project. This phase, which will include, among other things, an attempt to score actual positions of a selected group of key states and actors, will raise some important analytical and empirical challenges regarding inter-relatedness and contingencies in particular. The above discerned and analytically "isolated" some of the most important dimensions and sub-dimensions in the global climate change context. The strength of such a "cut-up" or disaggregation approach is that the pieces of the political puzzle are clearly identified and placed under the analytical microscope, so to speak. In this way, it becomes easier to clarify logical and analytical sub-dimensions that otherwise easily are obfuscated in a complex and constantly changing world of negotiations. However, we *are* dealing with a puzzle and with parts that somehow fit together. When empirically mapping positions of actors, it is therefore important to be as sensitive as possible to relationships between

actor positions on different issues and dimensions. We probably should expect that relatively few and well-defined clusters would form around particular climate targets, policies and measures. A good example of this is the close relationship a key actor such as the United States sees between its positions on "emission level" and its positions on "implementation context". It will therefore be necessary to move from single-issue positions to country "profiles" in the MIN project. Hence, understanding trade-offs and package deals within and among states most likely will be essential.

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The research concentrates on:

- International negotiations on climate agreements. The themes of the negotiations are distribution of costs and benefits, information and institutions.
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