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Preface

National ratification of international environmental agreements is a prime example of *post-agreement negotiations*. It is often the first subprocess in a larger process of sustained negotiations that occur *after* international accords are concluded, focused on implementation of those accords. Certainly, implementation of negotiated agreements involves legal, political, verification, and enforcement activities at both domestic and international levels. Many of these activities, including ratification, are characterized by negotiations between various stakeholders to reach mutually beneficial and acceptable means to achieve national implementation of, and compliance with, treaty provisions.

This paper places ratification negotiations within the larger conceptual context of post-agreement negotiations, with the goal of understanding and explaining problems of treaty compliance. An empirical analysis is conducted to assess the impact of various inherent and situational factors on problems in the ratification process. Ultimately, we are interested in identifying ways of improving the international negotiation process that initiated these later problems in implementation. Recommendations are offered in this regard.

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Is the international community entering an era of *sustained negotiations* on environmental issues? The allusion to the United Nations Conference on Environment and Development's (UNCED) goal of sustainable development is no accident. Sustained negotiation is the process by which sustainable development issues are likely to be resolved.

Sustainable development expresses the viability of continued economic growth that is not destructive or wasteful of natural resources or the environment (see Brooks, 1992, for an extensive discussion on the range of definitions for the term "sustainable development"). Sustained negotiation is exemplified by mutually acceptable agreements that spawn dynamic cooperative systems, procedures, and structures which institutionalize a sustained dialogue on issues that cannot, by their very nature, be resolved by a single agreement. Partial, incremental agreements tend to predominate on environmental issues due to scientific uncertainty concerning many of the problems and possible solutions, and the need for continued learning about effects and consequences. Partial agreements are also customary because of the political uncertainty in devising fair and equitable approaches at a global level. Sustained negotiations often have no clear cut end-point. A prime manifestation of sustained negotiation is the frequently used *convention-protocol* mechanism (examples of which are the long-range transboundary air pollution in Europe and the ozone depletion conventions and protocols) in which a broad framework of principles is agreed to, followed by additional negotiations to specify the details (see Susskind and Ozawa, 1992, for a critique of this approach to treaty-making).

Sustained negotiations present diplomats and policy makers with the challenge of progressively reframing the problems, adjusting strategies and perceptions, and refining solutions in *post-agreement negotiations*. UNCED has propagated such a system of post-agreement negotiation, dealing with climate change, biodiversity, deforestation, desertification, and others, which certainly will occupy the diplomatic, scientific, and interested nongovernmental communities well into the next century.

The research community, in parallel, is confronted with new challenges of analyzing systems of partial, linked agreements and an increasingly fuzzy demarcation between negotiation and implementation. Another research question is that of effectiveness. Negotiation analysis, while focusing its attention on how process leads to outcomes (Kremenyuk, 1991), usually defines outcomes as agreements reached at the bargaining table. Many practitioners, on the other hand, conceive of negotiation outcomes not as the agreements themselves, but as the *effectiveness* of those agreements. Are agreements implemented at all and do they produce the intended impacts on the problem area that initiated negotiations in the first place?

With the end of the cold war and East-West confrontation, many global and regional issues, which previously appeared intractable, now seem to be solvable. Negotiation has become a principal vehicle for international dispute resolution. Multilateral talks on nuclear and conventional arms reduction and a host of environmental issues have especially benefitted from the new political willingness on all sides to cooperate in settling age-old problems that threaten the security of the planet. The success of these negotiations, though, can only be determined by evaluating the effectiveness of the *post-agreement negotiation process* -- the dynamics which occur at both national and international levels that may involve additional negotiations among domestic stakeholders and results, if successful, in compliance with the negotiated agreement. If we conceive of the *negotiation process* as encompassing joint problem-solving activities conducted in the hope of achieving integrative solutions, the *post-agreement negotiation process* involves the transformation of words into concrete realities through compliance with agreements. It involves new actors and new fora, at both national and international levels, engaged in further negotiations -- this time focused on finding acceptable approaches to *ratifying and implementing* negotiated agreements. In large part, the post-agreement negotiation process is the yardstick by which the quality and effectiveness of the *negotiation process* can be judged.

The objective of this study is to initiate an analysis of the system of negotiations that continue *after* the initial negotiations conclude. Our assumption is that if we can diagnose reliably the problems and successes incurred in the post-agreement negotiation process, we can provide useful feedback to the initiating negotiation process -- identifying novel approaches and structures that can avert or alleviate difficulties that might trickle down into the implementation period. Thus, this study's goal is to instate a learning cycle, one in which the ultimate outcomes of the negotiation process offer meaningful recommendations to improve future negotiation processes.

Conceptual Framework

International conflict resolution through negotiation can be viewed as a multi-staged and interactive system for joint problem-solving. First, disputants engage in *prenegotiation* to diagnose and plan for a full-fledged negotiation search for mutually acceptable solutions. Second, through *negotiation* itself, disputants express their need for agreement. Finally, in *post-agreement negotiation*, disputants engage in intensive joint problem-solving activities focused on ratifying, implementing, complying with, and perhaps, renegotiating, a solution.

Unlike the prenegotiation and negotiation phases, the post-agreement negotiation period has received minimal attention by researchers. There has been some attention paid to the governance of negotiated agreements and the development of *regimes* that set the rules and procedures by which nations agree to implement, abide by, and settle disputes on certain issue areas (Haas, 1975; Krasner, 1983). More recently, the regime concept has been applied to environmental issue areas and specific problems of national compliance with international and regional agreements have been assessed, many in connection with the framework convention on climate change (Young, 1989; Thacher, 1991; Sand, 1991; IIASA, 1992).

Yet, basic research to establish an integrated conceptual framework of the post-agreement negotiation process is lacking. Young (1989, p. 12) expresses special dismay at the absence of such an integrated analytical construct in the field of international regimes, let alone the broader process of post-agreement negotiation.

> ... much of the newly emerging literature on regimes is weak, particularly in analytic terms. The last decade has brought a surge of interest in the study of international regimes. We now have fairly extensive descriptive accounts of some specific regimes and some speculative ideas about phenomena such as regime change. Even so, the fundamental character of international regimes remains elusive, and there is nothing approaching consensus on the role of regimes in international society. Considering the pervasiveness of regimes at the international level, the resultant limits on the state of our knowledge of international regimes constitute a serious deficiency.

A conceptual framework for the post-agreement negotiation process is presented in Figure 1 and part of it -- the ratification subprocess, in particular -- is tested later in the paper using systematic empirical methods. The post-agreement negotiation process is depicted as having two interactive components -- the domestic and international -- in which negotiations continue at multiple levels, in new fora, and with new actors, after an international agreement has been struck, ultimately resulting in compliance or noncompliance. In the domestic component, there are three subprocesses. First, *ratification* or acceptance of negotiated agreements by each national government that wishes to participate in the agreement is often required. Domestic ratification can be conceived of as a negotiation process in itself, bringing together the various domestic stakeholders who have an interest in some aspect of the agreement. After ratification, *rule-making* is required at a national level, by which laws and regulations are enacted to conform with the stipulations of the agreement. Such rule-making may require negotiations among domestic stakeholders in nongovernmental, as well as governmental, organizations. Finally, *monitoring and reporting* functions are performed to provide

feedback on the success or failure of laws and regulations. Through these functions, a signatory nation to an environmental treaty can evaluate, monitor, and enforce national compliance with an international agreement.

There are three subprocesses as well in the international component of the post-agreement negotiation process. First, there is the *regime formation* process in which the rules and procedures by which the negotiated agreement will be implemented and institutionalized are embedded. In *regime operation*, data concerning participant actions are collected, compliance is monitored, verified, and enforced, and disputes resolved. The final subprocess is that of *regime adjustment*, in which the rules, procedures, and targets originally established in the negotiated agreement might be modified in conjunction with new information collected on the effects of compliance and as science learns more about the issue. If significant changes to a regime are required, renegotiation may be called for. Otherwise, adjustments may be reflected in the need for additional domestic rule-making.

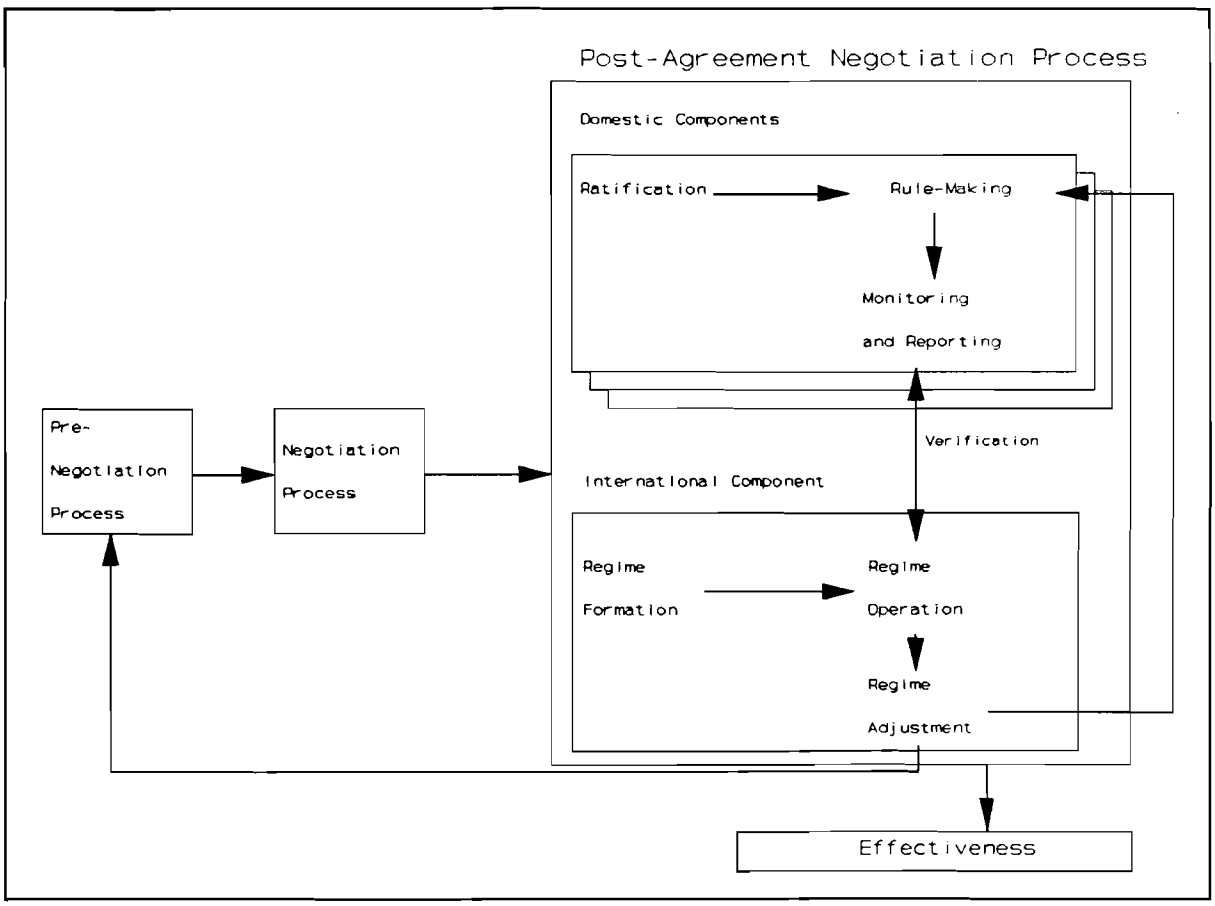

Figure 1. The Post-Agreement Negotiation (PAN) Process

Literature Review. Numerous correlates of acceptance or delayed acceptance of negotiated treaties have been advanced in the research literature. They can be classified into four categories: treaty- or issue-specific, extraneous, process, and status factors. Among *treaty- or issue-specific factors*, the salience of treaty issues for a country can have a significant impact on the speed of ratification. Using quantitative methods, Smart and Murray (1984) positively linked the extent of drug problems in countries with increased likelihood of ratification of international drug control treaties. The provisions of treaties, and the particular ways they are written, can also have major impacts on ratification chances (Weissbrodt, 1982). Reviewing United Nations mechanisms for encouraging the ratification of human rights treaties, he found that particularly vague and ambiguous phrasing, unclear roles for proposed and existing structures and procedures, and incompatibility with extant domestic legislation can all threaten the success of ratification negotiations.

Several researchers suggest that the lack of sufficient public pressure mobilized specifically to attain treaty ratification, as well as targeted opposition by industry or political groups are likely to yield extensive delays in the process (Lang, 1992; Nowak, 1992). The formation of stakeholder coalitions that assume a blocking strategy can result in impasse and nonacceptance. Delay tends to work against ratification altogether, providing time for the opposition to mobilize (Caldwell, 1988). Opposition can take the varied form of ministries and bureaucratic departments that regard treaty provisions as prejudicial to their domestic missions, as well as industry and business interests that view certain international agreements as placing undue restrictions and causing unnecessary change to their customary methods of operation. Legislators are likely object to treaties that require major adjustments to their constituents' lifestyle and livelihood (Lang, 1992). On the other hand, Cook (1990) found, in a statistical analysis of 38 global environmental treaties, that organized citizen opinion concerning the issues in a treaty can explain faster rates of national ratification. Endicott (1977) concurs that public opinion was influential in finally convincing Japanese legislators to ratify the Nuclear Non-Proliferation Treaty (NNPT) in the mid-1970s.

Many researchers conclude that delay in acceptance or nonacceptance altogether has little to do with deliberate decisions of governments; rather, it often stems from circumstances that are *extraneous* to the substance of the treaties. Caldwell (1988), examining the ratification process for the Law of the Sea and CITES, points out that other issues of higher priority can displace consideration of a treaty on political agendas, especially when no pressing national exigency is felt. Endicott (1977) attributes the six year delay in Japanese ratification of the NNPT to the distraction of the government by other issues and by political scandals on the domestic scene which took precedence; the Lockheed Affair served to bring all substantive deliberations to a halt, including those on the NNPT. At the same time, it was primarily external events and pressure, in Endicott's view, that caused the Japanese parliament to push forward with the treaty acceptance process. The threats of economic disadvantages that might accrue from stricter fuel export regulations in the nuclear power industry, political disadvantages of holding only observer status in the treaty review conference, and publicly-stated concern over Japan's true nuclear intentions from several major countries influenced the process of ratification positively. On the other side of the coin, Soviet military actions in Afghanistan and Cuba became politically linked to the ratification negotiations concerning the SALT II treaty in the U.S. Senate, highly politicizing the treaty issue and effectively killing approval (Caldwell, 1991).

Extraneous factors influencing ratification debates can also pit the treaty against domestic politics. Greilsammer (1991) probed the reasons behind the initial non-ratification and subsequent ratification of the EEC-Israel Protocols by the European Parliament in 1987-88. Ratification of this trade agreement became intimately intertwined with an attempt by the Parliament, after the Single Europe Act (1986), to affirm and strengthen its political role in Community decision-making. Moreover, the Parliament attempted to use the protocol ratification process to obtain a significant role in the search for peace in the Middle East. Another potent domestic element that threatens ratification negotiations is the fear that acceptance of international commitments risks national sovereignty

(Weissbrodt, 1982).

Another important category of factors influencing ratification negotiations are *process elements*. Schachter, et al. (1971) examined the acceptance patterns for 81 multilateral UN treaties in one of the few broadly based cross-sectional research efforts on the subject and concluded that process factors dealing with administrative problems and the incapacity of economic and human resources at a national level to implement treaty provisions can play significant roles in creating deadlock. Starke (1989) concurs that the need for protracted administrative work prior to ratifying a treaty and the limited time available to debate acceptance in parliamentary bodies can often yield delay. Referencing a report written for the League of Nations on problems with ratification negotiations, he identified the absence of thorough preparatory work back home, the need for new national legislation, and the need for increased public expenditures as being most influential in producing stalemate.

The nature of the political process -- its degree of openness and centralization -- is often associated with the ease with which treaties can be ratified. A commonly held belief is stated by Nowak (1992): that centralized and autocratic political systems have a greater capacity than open pluralistic systems to ratify treaties quickly when they see it in their political interests to do so.

In another analysis of Japanese NNPT ratification negotiations, Cho (1981) focuses on the importance of yet a different process element: leadership. The functional and positional centrality of the Prime Minister is credited with successful ratification negotiations. His personal abilities to build consensus and his leadership style played a central role. Supportive of these findings, Caldwell (1991) suggests that the SALT II treaty in the U.S. failed to be ratified because of negative executive-congressional relations and lack of strong presidential leadership.

Schachter, et al. (1971) identified several options to reduce delay and improve the national process of ratification: greater involvement of parliamentarians in the delegations that negotiate treaties in the first place, better coordination of treaty documents and materials for legislatures, facilitative roles played by the parties that negotiated the treaty, and special consultation committees formed between diplomats and legislatures to ease the transition from international negotiation to domestic ratification.

The fourth category of factors that influence ratification delay are *status factors*. Linkages have been established between country characteristics and the length of time needed to ratify international treaties. Both Smart and Murray (1984) and Schachter, et al. (1971) found that newer UN member states rarely ratified treaties, but older UN member countries were more likely to ratify. Ratifications are more common among developed than developing countries and among those with a high quality of life; are *not* more common among larger countries nor among those with higher spending on health and education; and are more common among countries that have ratified more international treaties in the past (Smart and Murray, 1984; Cook, 1990). Based on their statistical analysis, these authors believe it is possible to forecast the likelihood of ratification of future drug control treaties based on a country's life expectancy, degree of economic development, and degree of drug problem.

Hypotheses. On the basis of this literature, several working hypotheses were formulated concerning the relationships between situational factors and treaty ratification. Few have been tested systematically across the range of international environmental treaties currently in force.

(1) Europe, during the period under study, is a mixture of pluralistic and autocratic political systems, with differing rates of economic growth and different legal and law-making systems. It is conceivable that the ratification process -- the domestic negotiation among various stakeholders --

operates very differently across these different types of political systems. *It is hypothesized that open pluralistic systems are more likely to yield deadlock and delay in ratification, especially because of the public debate and negotiation that ensues. Highly centralized and closed systems, on the other hand, have the capacity to ratify treaties quickly, provided it is viewed in the national interest.*

(2) The level of public concern across environmental issues differs from country to country. As well, public concern is likely to vary depending on whether the salient environmental issues are local or international in terms of their consequences. When public concern over environmental issues is high, public pressure can be effectively mobilized on parliamentary bodies that are empowered with ratifying international treaties. *This pressure can be a positive force in reducing ratification time, taking the form of catalytic initiating actions, lobbying, education, and implementation assistance.*

(3) A population's quality of life is strongly related to the state of the environment. *If a country's quality of life is high, concern over environmental problems should also be high, and public pressure to mobilize effective political action to ratify environmental treaties should follow.*

(4) Political recognition of environmental issues by the development of environmental legislation, the establishment of government agencies to deal with environmental issues, and increases in public expenditures on environmental concerns denote a degree of issue saliency. The more salient the issue, the more likely parliamentarians will be motivated to ratify international treaties quickly. Thus, *as public expenditures on environmental protection increase, the greater the likelihood that national acceptance of international environmental treaties will be expedited.*

(5) A country's wealth enhances its capacity to implement often stringent international treaty provisions. *If the wealth and resources exist to comply and there is the political willingness, the negotiation process leading to national acceptance and ratification is likely to be facilitated.*

Problem Context: International Environmental Treaties

Chayes (1991), discussing the negotiations to develop a framework convention on climate change, indicates that realistically, "it will be years, perhaps decades, before agreed limitations on greenhouse gas emissions are legally in effect" (p. 61). The ratification process for the convention would take years to complete and then protocols that specify particular emission targets would still have to be negotiated. These, too, would certainly take time to ratify and then put into force. The international mechanisms required to monitor compliance with the provisions of these protocols would also have to be negotiated and implemented, thus adding yet more years before a stable global regime to curb greenhouse gases is operational. This slow-paced process of international cooperation is juxtaposed in sharp contrast with a scientific problem whose consequences may become irreversible by the time agreed upon limits become effective.

While negotiated environmental agreements have perhaps been more prone to lagging implementation in comparison to negotiated agreements in other issue areas, the problem is likely to get worse in the future. The distinctive aspect of UNCED is its emphasis on the *linkages and interconnectedness* between environmental sectors (deforestation and climate change, for example) and between environmental issues and other issue areas (for example, trade and environment, development and environment, health and environment, and financial resources and environment). When the topics under negotiation are defined in such *multiple issue packages*, the result is that the negotiation process becomes much more complex and lengthy, as does the post-agreement negotiation process of ratification and implementation. Solutions must address not one, but many, interacting issues and problems -- identifying and resolving tradeoffs across multiple issues -- in order to develop a comprehensive packaged agreement.

Issue complexity in negotiated agreements is likely to result in implementation difficulty in

the post-agreement negotiation process. While it is often very difficult for negotiators to strike multiple issue deals at the international bargaining table, they can face almost insurmountable impasses when they return home to defend the final text at ratification hearings. Negotiators representing their countries before an international forum may be sufficiently flexible to reach an agreement. But stakeholders back home (such as ministry bureaucrats, political parties, business, unions, citizen lobbies, etc.) may be much more hard-nosed and tough as internal *domestic negotiators*, responsible for approving and implementing the product of international negotiation. If these domestic actors were not involved in the prior international negotiation phases -- especially in terms of framing the issues and clarifying national interests -- their perspectives may not be accounted for in the negotiated settlement itself.

The new UNCED-inspired approach of defining issues in terms of their linkages is certain to result in bundled agreements that extend across various interest domains, and likely to make future environmental agreements more complex. Such multi-issue treaties will be more prone to deadlock in their implementation than their single issue counterparts. And what is the use of carefully negotiating a regional or global pact if the interested parties cannot or will not implement the agreed provisions at a national level?

UNCED and, in particular, Agenda 21, the global action plan agreed to at the Conference, establish a mandate for a system of follow-up negotiations on a wide range of sustainable development issues. As part of this mandate, a new Sustainable Development Commission within the UN Economic and Social Council (ECOSOC) is being established to provide an institutional framework for the coordination of future negotiation and agreement implementation activity. These post-agreement negotiations constitute a continuing process toward gaining international cooperation on environment-development issues. During this period, the international community must implement its agreements, develop international regimes, deal with domestic negotiations on implementation,

monitor and verify compliance, and continue to negotiate protocols as enhanced scientific data on these issues are revealed.

Approach

A systematic diagnostic analysis of opportunities and difficulties encountered across a wide spectrum of environmental treaties should produce a set of factors that explain effective and problematic post-agreement negotiation processes. In this paper, we conduct such an analysis for the first subprocess of ratification. While ratification of a treaty certainly does not indicate compliance with the provisions of the agreement, it does suggest a willingness and intent to comply, subject to many political, social, and economic factors that may intervene in the post-agreement phase.

The effort takes the form of a comparative, cross-sectional study in which basic patterns are derived about ratification problems by evaluating a large number of agreements and key factors that led to them (a similar approach was used by Schachter, Nawaz, and Fried, 1971). The analysis seeks to develop an inventory of useful generalizations about the post-agreement negotiation process through assessment of many cases.

Two empirical diagnoses are reported here. Both operationalize the dependent variable in terms of the time elapsed for ratification or official national acceptance of a treaty. The first hypothesizes that as issue complexity increases in a negotiated agreement, ratification time will also increase. It suggests that elements inherent in the negotiation and the agreement itself can be useful in explaining the average time required to ratify treaties. The second study hypothesizes that several political and economic factors outside of the negotiation process play major roles in influencing the speed of national ratification and acceptance of international environmental treaties. The saliency of these situational factors is exemplified in this study.

For both studies, data were collected across a large number of international environmental agreements concerning the extent of ratification delay. Using the inventory of treaties catalogued by the United Nations Environment Program (totaling 152 agreements) between 1921 and 1989 (UNEP, 1991), a sample of treaties was selected (see below) and the time required to ratify/accept each treaty for each signatory nations was measured as the time elapsed between the date of adoption and the date of entry into force for each party.

Issue Complexity and Ratification Delays

The working hypothesis tested in this study postulates that issue complexity in the negotiated agreement is likely to increase post-agreement implementation problems, in particular, the average time required to ratify treaties. Data were collected on 33 environmental treaties catalogued by the United Nations Environment Program between 1921 and 1989 that were concerned with international (not regional) environmental issues, where membership was universal (not restricted to certain countries), and where the agreement was already in force. Treaties were the unit of analysis (n=33). For the dependent variable, the number of years of delay in ratification was averaged over the number of countries that ratified each treaty. The independent variable -- issue complexity -- was operationalized in terms of whether the agreement concerned a single issue or multiple issues. To measure this, it was necessary to refer to the complete text of each agreement in the sample and code the principal issues dealt with. The full texts were available in Kiss (1983) and Rummel-Bulska and Osafo (1991). Analysis yielded some revealing findings about the nature and extent of ratification problems.

1. Is ratification really a problem? Environmental treaties do indeed require a long time frame for ratification, a period before implementation of the provisions can even be considered. The average length of time to ratify across the sample of 33 treaties is 5.8 years. In many cases, the

scientific consequences of waiting can be disastrous and the environmental damage incurred irreversible.

2. *Is the problem getting worse?* The results here are encouraging. Our historical sample suggests a trend toward shorter average times to ratify (see Figure 2). This pattern can be attributable to improved communication among countries, the establishment of international organizations, and the growing legal precedent, which all serve to educate nations of the urgency of implementing environmental agreements so as to begin containment or conservation actions. However, during the 1980s, the waiting period for ratification still averaged close to 3 years!

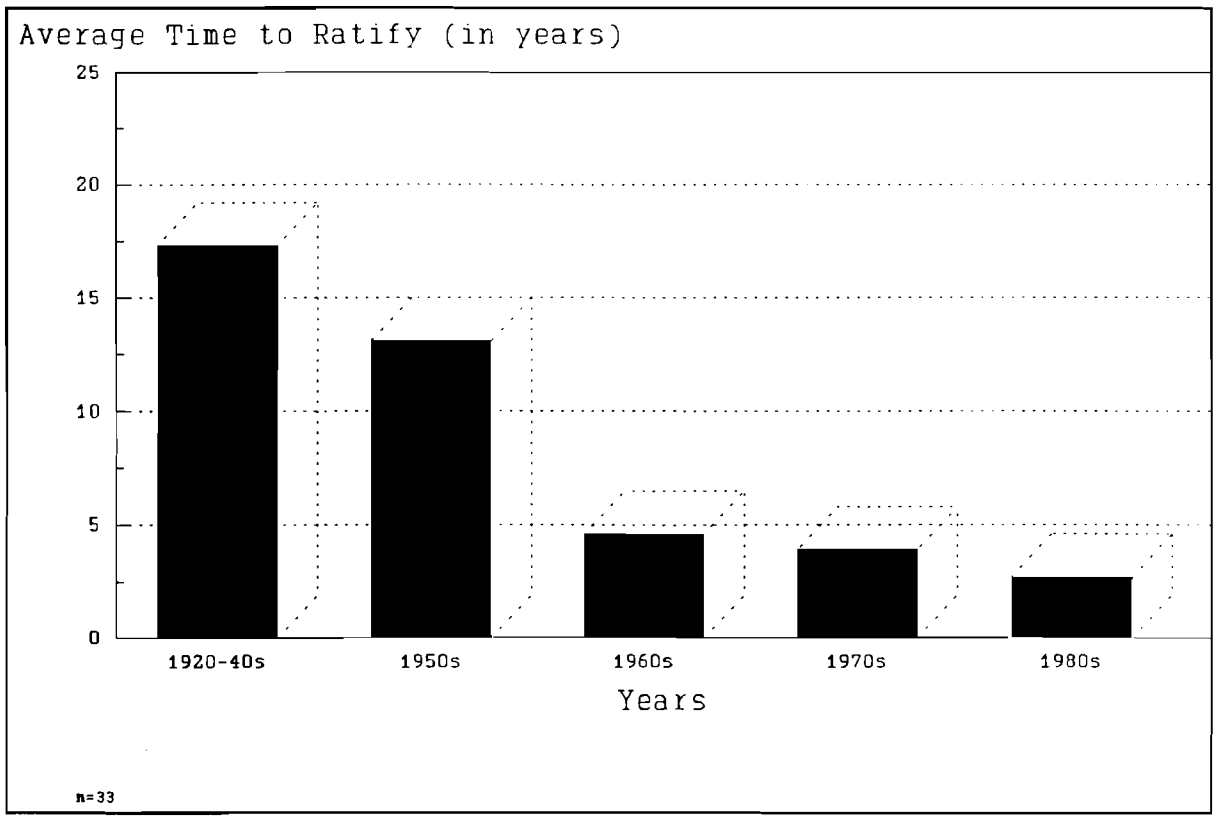

Figure 2. Average Time to Ratify Environmental Agreements over Seven Decades

3. *Are treaties concerned with certain issue areas more prone to longer ratification periods?* The types of international environmental agreements that produce the longest ratification times are

those dealing with the prevention or control of pollution, worker health, and industry regulation (see Table 1). These three categories, in particular, involve the establishment of restrictions and limitations on current industrial activity. Restrictive provisions, aimed largely at economic interests, apparently activate influential business stakeholders to get involved in domestic negotiations over ratification, thereby prolonging debate and staving off implementation of treaty provisions.

Table 1. Ratification Time by Issue Category

Category of Agreement	Average Number of Years to Ratify
Liability for environmental accidents (n = 4)	2.8
Disarmament and pollution control (n = 5)	3.0
Conservation (n = 5)	4.7
Commercial exploitation of resources (n = 3)	5.0
Pollution prevention or control (n = 6)	6.0
Worker health and pollution control (n = 6)	8.1
Conservation and regulations on industry (n = 4)	10.1

4. Is time to ratify a function of the issue complexity of an agreement? There is a significant difference in the average time to ratify between single and multi-issue treaties (4.75 years and 7.2 years, respectively), suggesting that issue complexity is a major contributing factor to delay and possible rejection of internationally negotiated environmental agreements that need to be implemented at a national level.

Situational Influences on Ratification Delays

A systematic assessment of the situational correlates of ratification delays should yield further insight into the factors that facilitate and inhibit this post-agreement process.

Data Collection. In this analysis, a sample of 61 international environmental treaties was selected from the UNEP registry (1991). They all met the following criteria: adoption after the

landmark 1972 Stockholm Conference on the environment, substantive interest for and participation by European countries, and entry into force status. Unlike the study on issue complexity reported earlier, a data base structured so as to use countries as the unit of analysis was developed. This enabled independent variables -- the situational factors -- to be gathered and analyzed on a country-by-country basis. The resulting sample (n=31) included 30 European countries and the European Community, which took on the formal responsibility of signing treaties in the name of its member states in 1987. The average time to ratify treaties -- the dependent variable -- was calculated for each country across the entire set of treaties in the sample to which it was a signatory.

Several independent variables were measured for each country. They include public opinion at the local, national and international levels, the wealth of a country measured by the Gross Domestic Product (GDP), the quality of life as indicated by the Human Development Index (HDI), and the percentage of total public appropriations spent on research and development (R&D) for environmental protection.[2]

Treaty content was coded as an intervening variable. The 61 treaties were categorized into issue categories, so as to gauge the importance of issues and the impact they may have on the time required for acceptance. Most of the treaties were multi-issue, and thus fell into more than one category. The issue categories are: Conservation and protection, riparian and marine pollution,

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[2] Data on public opinion of environmental problems was drawn from OECD (1991a), on public R&D expenditures for environmental protection from OECD (1991b), the Human Development Index (HDI) from UNDP (1991). The HDI index for 1991 was used for this analysis. All the countries of Europe in this sample were in the "high human development" group with the exception of Romania, which was in the "medium human development" group. Data on GDP per capita (1985-88) was taken from UNDP (1991). Public R&D expenditures (in million US$ at 1985 prices and purchasing power parities as a per cent of total R&D budget appropriations) for environmental protection in 17 European countries was taken from OECD (1991b). The midpoint selected for the data was 1981. Data on public opinion on environmental problems (OECD, 1991a) was gathered for 14 European countries and the EC for the period 1988-90. It represents the percentage of persons "very concerned" about environmental problems at the local level (on waste disposal, drinking water quality and air pollution); at the national level (on water and air pollution); and at the international level (on the depletion of world forest and natural resources and possible climate changes brought about by CO_2). Separate measures were available for each of these levels and issue areas.

atmospheric degradation, nuclear and security issues, restrictions on commerce and industry, and information exchange and technical cooperation.

Descriptive Findings. Across the entire sample of countries, the average number of years required for the acceptance of environmental treaties ranged between 3.0 and 6.5 years, averaging 4.2 years (see Figure 3). There is no obvious pattern in the array of countries in the figure -- from short to long ratification times. The hypothesis that the degree of pluralism or centralism in the political system has anything to do with the speed of treaty ratification can be dismissed by these data. Small states and Eastern European countries, open and pluralistic systems and closed autocratic systems, were not limited to one end of the scale, but were distributed across the range.

The sample was also analyzed by blocs of nations: the European Community (EC), European Free Trade Association (EFTA), Eastern Europe (Bulgaria, CSSR, GDR, Hungary, Poland, Romania, Yugoslavia), and small states/principalities (Cyprus, Liechtenstein, Malta, Monaco, San Marino) with populations of less than 1 million. It was anticipated that the characteristics of different blocs would influence ratification time. However, there were no statistically significant differences between the mean number of years required for acceptance across these blocs. It can be surmised that while the democratic parliamentary and public lobbying processes in the EC and EFTA blocs slowed down ratification, so too, bureaucratic stakeholders in the Eastern bloc impeded the treaty acceptance process. The great differences between pluralistic and autocratic governmental systems made little difference in the outcome concerning treaty ratification. In fact, interest groups of very different sorts had very similar effects on the outcome.

There were a few findings, though, that are exceptions from this pattern. One significant difference in means (t-test, $p < .006$) was found between Nordic countries and the rest of Europe: 3.5 years to ratify versus 4.3 years, respectively. This result might be explained by the outspoken

concern of the Nordics on environmental issues. The role played by international environmental problems as salient political issues for the Nordic nations appears to be a key driver in speeding up the ratification process there.

Another interesting finding (see Table 2) is the statistically significant difference in means across the four blocs for atmospheric treaties (ANOVA, F-test, $p < .012$). This type of treaty tended to be ratified quickly by small states and labored over by the Eastern European states. Perhaps the small states feeling threatened by atmospheric degradation, but not being required to pay many of the costs of reversing the problem, responded quickly to accepting these not so demanding global commitments. On the other hand, it is understandable that Eastern Europe, being among the most flagrant polluters on the continent, would delay ratification and the accompanying commitments to reduce toxic atmospheric emissions.

Overall, ratification of atmospheric treaties occurred much faster on the average than other categories of environmental treaties (see Table 2). This may be due to the fact that treaties dealing with the atmosphere in Europe received considerably more media exposure, NGO lobbying, and input from the scientific community than other categories of treaties (Benedick, 1991).

Analysis. Table 3 presents the correlational results between the time to ratify treaties and the several situational variables in the study. Pearson correlation coefficients were calculated across an all country-all treaty data base, as well as an all country-issue specific data base to determine if the content of the treaty had any special impact on the time needed to ratify it.

Several significant relationships were identified across all treaties. Countries with a higher GDP are more likely to ratify environmental treaties faster than those with lower GDPs ($r=-.340$). A country's wealth is associated with greater resources and a greater capacity to implement treaty

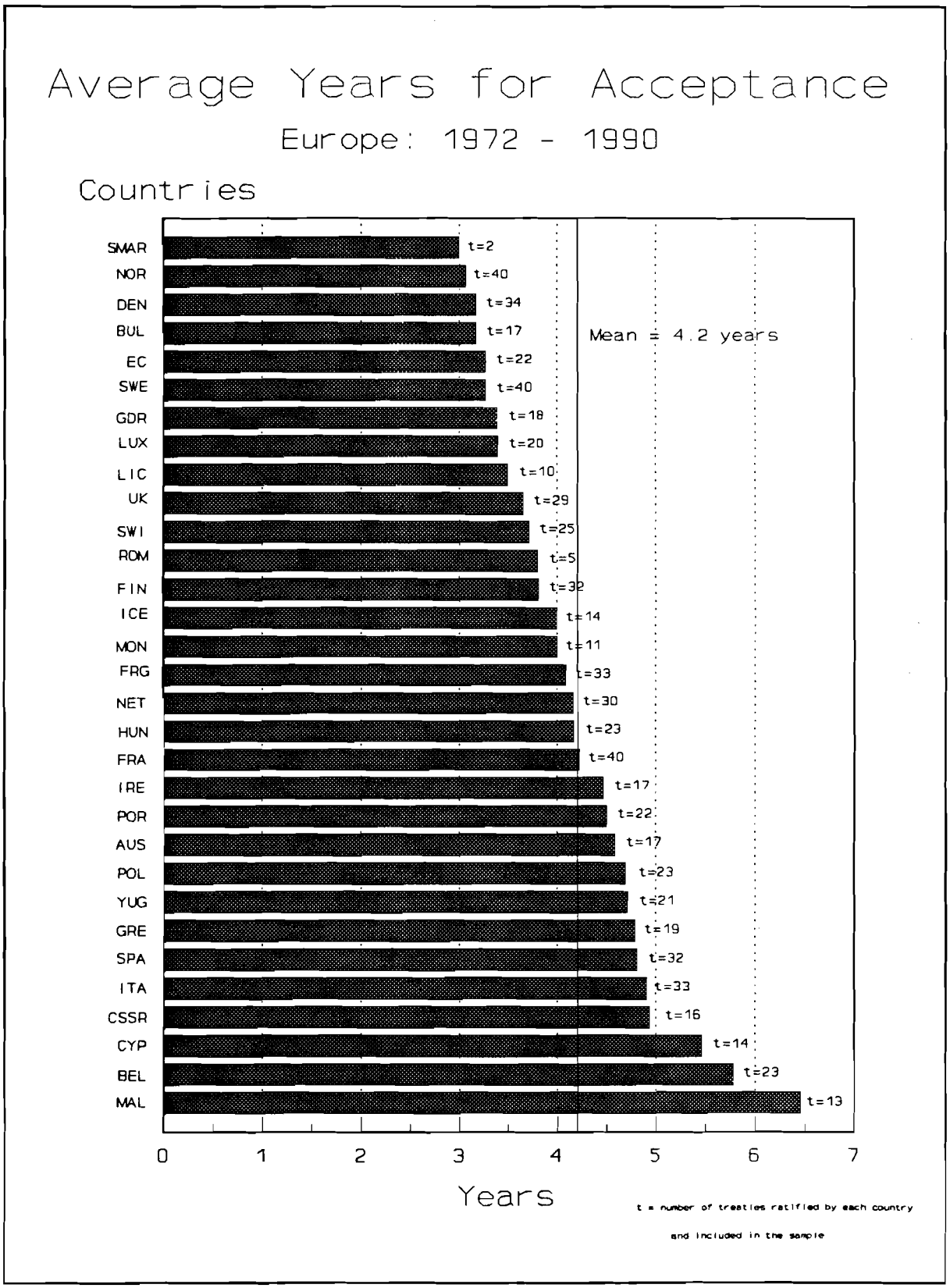

Figure 3. Average Time to Ratify by Country

Table 2. Average Time to Ratify by Bloc and Treaty Category

TREATY CATEGORIES	EC (n = 13)	EFTA (n = 6)	Eastern Europe (n = 7)	Small States (n = 5)	Average Ratification Time by Treaty Issue**
Conservation	4.509	3.464	3.460	4.567	*4.1*
Marine & Riparian	5.598	6.528	4.607	3.338	*5.2*
Atmospheric Degradation*	2.658	2.663	3.195	1.080	*2.5*
Nuclear & Security	4.038	4.231	3.607	3.667	*3.9*
Commerce & Industry	3.969	3.208	4.664	4.900	*4.1*
Info Exchange & Tech Cooperation	3.727	3.598	3.647	3.787	*3.7*
Average Ratification Time by Bloc	*4.3*	*3.7*	*4.1*	*4.5*	*4.2*

* (ANOVA, F-test, $p < .012$)

** Due to multiple coding of treaties into the six issue categories, the mean ratification time across treaty categories does not average to 4.2 years.

Table 3. Situational Correlates of Treaty Ratification Time by Treaty Category (pearson correlation coefficients)

Independent Variables	All Treaties	Conservation Treaties	Marine & Riparian Treaties	Atmospheric Degradation Treaties	Nuclear & Security Treaties	Commerce & Industry Treaties	Info. Ex. & Technical Coop. Treaties
R&D Expenditures 1981	−.104	.185	−.492	.225	−.222	.155	.064
R&D Expenditures 1989	−.119	−.094	−.413	.017	−.192	−.044	−.190
Human Development Index	−.168	−.489	−.433	−.505	−.181	−.509	−.670
GDP per capita (1985-8)	−.340	−.285	−.325	.114	.232	−.469	−.538
Public Concern, Air, Local	.268	.374	−.024	.315	.010	.300	.344
Public Concern, Waste, Local	.768	.818	.187	.637	.272	.516	.815
Public Concern, Water, National	.045	−.150	−.304	−.111	−.150	.478	−.181
Public Concern, Air, National	.086	.061	−.190	.025	.019	.369	−.015
Public Concern, Forestry, International	−.377	−.144	−.260	−.419	−.274	−.141	−.195
Public Concern, Climate Change, International	−.492	−.388	−.382	−.321	−.417	−.137	−.368

provisions. This finding corresponds with those of Smart and Murray (1984) indicating that higher economic development covaries with faster treaty ratification.

Another significant finding deals with the impact of public opinion on treaty ratification times. An interesting dichotomy arose in the results: when public concern is strongly focused on local environmental issues, the time to ratify international environmental treaties increases ($r = .268$ and .768 for local air and local waste disposal problems, respectively). However, when public concern is strongly focused on international environmental issues, ratification time decreases ($r = -.377$ and -.492 for international forestry and climate change issues, respectively). Intense public interest on local environmental problems can distract attention from the more global issues which are the subject of international treaties, evoking less public pressure on parliamentary bodies charged with ratification. When political attentions are concentrated on local issues, sufficient additional resources may not be available to deal with international issues (Winham, 1992). On the other hand, when public interest is mobilized on international environmental problems, it is often effective in pressuring political bodies into ratifying international treaties.

Reviewing the results on an issue-specific basis, we generally find that the same relationships hold. In addition, the Human Development Index -- a measure of quality of life -- covaries with ratification time on a treaty-specific basis. For each type of treaty, except for nuclear and security treaties, if a country's quality of life is high, the time to ratify tends to decrease. Environmental problems are certainly a major element of a country's quality of life; public interest and pressure on political bodies is likely to be aroused in those countries with higher indices.

The other category of situational factor -- public research and development (R&D) expenditures on environmental problems -- is highly correlated with the ratification time for only marine and riparian treaties. If the R&D expenditures are high, the time to ratify is likely to decrease

(r=-.492 and -.413, for expenditures in 1981 and 1989, respectively). Government spending on environmental problems is a good indicator of issue recognition and attention at a political level -- an indicator acknowledging issue salience by a country. Government spending indicates political recognition that the environment is a significant problem and that it must be confronted and acted upon. Part of that required action is domestic public spending; another part is ratification and implementation of international treaty provisions. We find that this relationship holds only in the case of marine and riparian treaties: as issue salience increases, ratification time decreases. Why only for these types of treaties? Accords on marine and riparian issues have a long tradition in Europe and specifically affect agricultural, fishing, and heavy industries. Perhaps the interested economic stakeholders in this issue area in particular placed special pressure on parliamentary bodies to ratify treaties to maintain and continue high public R&D expenditures.

Comparing the results across treaty areas, it is interesting to note that treaties concerning the environmental impacts of nuclear and security problems demonstrate different patterns on ratification time. Except for correlations between ratification time and public opinion measures, these treaties do not exhibit the same types of results as is found with other treaty categories. Being so closely linked with treaties in the military security and nuclear areas, perhaps these treaties display trends that are more typical of those issue areas than of environmental issues.

Summary and Conclusions

This analysis demonstrates clearly that when international civil servants, whose function it is to implement and monitor national compliance with environmental agreements, complain that very long time lapses occur before treaty signatories do anything, they are usually not exaggerating. There is a systematic problem in ratifying international environmental treaties manifested by long delays. Of all the different types of international environmental treaties, those dealing with atmospheric

degradation are ratified quickest (2.5 years) and those dealing with marine and riparian issues, more than twice that (5.2 years). A key element of this problem is the very structure of modern environmental treaties: they tend to be integrated, complex packages of multiple linked issues. While such packages are difficult to negotiate internationally, they are perhaps even more difficult to deal with in the post-agreement ratification negotiations that ensue domestically among local stakeholders.

Several situational factors covary and appear to contribute to ratification delay: strong public concern on local environmental problems, low quality of life, low national wealth, and low public R&D expenditures on environmental problems. Country size and various blocs of countries appear not to be affected by these patterns. Despite major differences in political systems between pluralistic and autocratic, local stakeholders press nevertheless for their interests in domestic negotiations over ratification, yielding significant delays.

What can be done? Given the innovation introduced by UNCED -- the framing and negotiation of environmental issues as clusters of multiple linked issue areas -- a critical implication of our study is that future environmental negotiations may be threatened by ineffective and lengthy post-agreement negotiation processes. Several remedial actions are suggested. First, perhaps the negotiation process in which complex multi-issue formulas are generated needs to be modified. One option is to provide domestic stakeholders who prolong the process with a sense of ownership over the tradeoffs and treaties they are being asked to ratify. This might be accomplished by including them on the national delegations that take part in the debates and decide on concessions at the international negotiation table. They can then bring back to their constituencies the rationale for certain provisions that otherwise might be hard to swallow. Another approach is to modify the structure of the accords themselves. While recognizing the reality of issue linkages, treaties can be creatively disentangled and formulated in ratifiable pieces.

Second, foreign aid and investment offered for sustainable development projects through such mechanisms as the Global Environment Facility operated by the World Bank, the United Nations Environment Program, and the United Nations Development Program can help to bolster domestic resources and capacity to implement treaty provisions. As the analysis suggests, as resources and capacity increase, self-confidence in national implementation also increases, and ratification delay can be reduced. Foreign investment, over the longer term, is also likely to enhance the quality of life in developing countries, generating the tangential benefits of greater public awareness and mobilization of public pressure legislatures to ratify and implement treaties quickly.

Third, perhaps a new learning process in the post-agreement negotiation process is required. Nongovernmental organizations, the scientific community, intergovernmental organizations, and the media can be encouraged to play a useful role in educating the public and national political actors about the issues, so that they will understand the rationale for the linkages and the solution tradeoffs (Sjöstedt and Spector, 1993). Mobilization of public concern and awareness about international environmental problems has been shown to be a potent tool in stimulating ratification negotiations; legislative bodies respond to strongly stated public opinion. At the same time, international problems can be more abstract than local environmental issues and hence require redoubled educational efforts to generate sincere public concern. The results indicate that as recognition of environmental problems by policy makers increases and it becomes salient in the political arena, ratification time will decrease. Economic stakeholders need to be educated as well, so that they understand clearly the cost implications of implementing new regulations and restrictions within the context of other economic and environmental benefits.

Post-agreement negotiation over ratification is the practical process by which national acceptance of international environmental treaties occurs in most countries. While one of its most prominent features is negative -- delay in implementation activities, it is a necessary and, in some

sense, cathartic process which yields, in the best of situations, consensus or at least acceptance by the major domestic groups who implement or must change their ways of behaving significantly. In the worst of cases, ratification negotiations can result in gridlock, preventing implementation all together.

Sand (1991) and Susskind and Ozawa (1992) identify ways of averting the negative aspects of the ratification process. They suggest *changes to the structure of solutions*, for example, provisional treaty application, soft law options, and delegated lawmaking, which can bypass the ratification process. Alternatively, new approaches that *change the process* by which agreements are reached are offered in this paper. They seek to confront the threats to ratification in the negotiation process itself, providing yet another path to constructive implementation of practical solutions to environmental problems.

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