# Doing is Believing: Participation and Use of Assessments in the Approximation of EU Environmental Legislation in Eastern Europe

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## CITATION, CONTEXT, AND REPRODUCTION

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The Global Environmental Assessment (GEA) project is a collaborative team study of global environmental assessment as a link between science and policy. The Team is based at Harvard University. The project has two principal objectives. The first is to develop a more realistic and synoptic model of the actual relationships among science, assessment, and management in social responses to global change, and to use that model to understand, critique, and improve current practice of assessment as a bridge between science and policy making. The second is to elucidate a strategy of adaptive assessment and policy for global environmental problems, along with the methods and institutions to implement such a strategy in the real world.

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Publication abstracts of the GEA Project can be found on the GEA Web Page at http://environment.harvard.edu/gea. Further information on the Global Environmental Assessment project can be obtained from the Project Associate Director, Nancy Dickson, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University, 79 JFK Street, Cambridge, MA 02138, telephone (617) 496-9469, telefax (617) 495-8963, Email nancy_dickson@harvard.edu.

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## ABSTRACT

Shared scientific understanding of environmental threats and possible responses is an essential basis for successful environmental cooperation. Yet, international consensus about policy-relevant knowledge is often difficult to achieve. Significant distributional implications of environmental agreements for multiple sets of actors can interfere with the process of effective knowledge building and communication. This paper will consider the role of environmental assessments in international environmental negotiations, and the characteristics that make assessment processes more effective tools for communication of expertise. It advances the proposition that the acceptance of knowledge by multiple actors with divergent interests depends critically on broad political consultation in the expertise-generation processes. A case study of the role of economic assessments in the political negotiations surrounding the approximation of EU air-quality legislation in Poland and Bulgaria, provides evidence in support of this argument. The empirical analysis also shows that achieving adequate participation in assessment processes is often a difficult task, and depends on the ability to embed the process within a rich institutional framework that would allow for the involvement of relevant audiences, while maintaining the boundary between expertise and politics.

# FOREWORD

This paper was written as part of the Global Environmental Assessment Project, a collaborative, interdisciplinary effort to explore how assessment activities can better link scientific understanding with effective action on issues arising in the context of global environmental change. The Project seeks to understand the special problems, challenges and opportunities that arise in efforts to develop common scientific assessments that are relevant and credible across multiple national circumstances and political cultures. It takes a long-term perspective focused on the interactions of science, assessment and management over periods of a decade or more, rather than concentrating on specific studies or negotiating sessions. Global environmental change is viewed broadly to include not only climate and other atmospheric issues, but also transboundary movements of organisms and chemical toxins.

The Project seeks to achieve progress towards three goals: deepening the critical understanding of the relationships among research, assessment and management in the global environmental arena; enhancing the communication among scholars and practitioners of global environmental assessments; and illuminating the contemporary choices facing the designers of global environmental assessments. It pursues these goals through a three-pronged strategy of competitively awarded fellowships that bring advanced doctoral and post-doctoral students to Harvard; an interdisciplinary training and research program involving faculty and fellows; and annual meetings bringing together scholars and practitioners of assessment.

The core of the Project is its Research Fellows. Fellows spend the year working with one another and project faculty as a Research Group exploring histories, processes and effects of global environmental assessment. Academic year 1997-8 focused specifically on the past three decades of climate change, long-range transport and tropospheric air pollution assessment experience with special attention to Europe and North America. These papers look across a range of particular assessments to examine variation and changes in what has been assessed, explore assessment as a part of a broader pattern of communication, and focus on the dynamics of assessment. The contributions these papers provide has been fundamental to the development of the GEA venture. I look forward to seeing revised versions published in appropriate journals.

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## ACRONYM LIST

| | |
|---|---|
| **CEE** | Central and Eastern Europe |
| **CEEC** | Central and East European Countries |
| **DG1A** | Directorate General for External Relations: Europe and the New Independent States, Common Foreign and Security Policy and External Missions, European Commission. |
| **DGXI** | Directorate General for Environment, Nuclear Safety and Civil Protection, European Commission. |
| **DISAE** | The PHARE-funded facility to support approximation of environmental law in Central and East European countries |
| **US DOE** | US Department of Energy |
| **EBRD** | The European Bank for Reconstruction and Development |
| **EEA** | European Environmental Agency |
| **EPA** | Environmental Protection Agency |
| **EU** | European Union |
| **IIASA** | International Institute for Applied Systems Analyses |
| **LCPD** | Large Combustion Plant Directive |
| **LRTAP** | Long-Range Transboundary Air Pollution Convention |
| **MOE** | Ministry of the Environment |
| **NEC** | National Electricity Company |
| **NGOs** | Non-governmental organizations |
| **PAS** | Polish Academy of Science |
| **PPGC** | Polish Power Grid Company |
| **TAIEX** | Technical Assistance and Information Exchange Office. |

## 1. Introduction: Assessments as Tools for Knowledge Building and Communication in International Environmental Cooperation.

Shared scientific understanding of environmental threats and possible responses is an essential basis for successful environmental cooperation.[1] Yet, international consensus about policy-relevant knowledge is often difficult to achieve. Significant distributional implications of environmental agreements for multiple sets of actors can interfere with the process of effective knowledge communication[2]. What mechanisms of scientific collaboration and information dissemination can advance the goal of consensual knowledge[3] building in the face of distributional conflicts?

This is a question of great practical and theoretical salience in global environmental affairs. International relations scholarship emphasizes the importance of reducing uncertainties and improving scientific understanding as a basis for cooperative solutions of environmental problems (Haas, P. et al.1993, Haas, E. 1990, Haas, P. 1990). A set of empirical studies also demonstrates that causal ideas, supported by sufficient political consensus, can be critical in determining the likelihood and form of cooperation in issue areas such as public health, international monetary policies, and environment (Cooper 1989, Ikenberry 1993, Benedick 1991). Peter Haas (1990, 1997) identifies epistemic communities as agents of consensual knowledge building and dissemination internationally. There is, however, little systematic exploration of the characteristics of knowledge-generating processes and institutions that affect their ability to communicate effectively causal information across actors with divergent preferences.

This paper makes a step in this direction. It will consider the role of environmental assessments[4] in international environmental negotiations, and the characteristics that make assessment processes more effective tools of expert consensus building and communication. I shall advance the proposition that broad participation in assessments is a necessary condition for effective communication of knowledge to multiple political audiences. The next section elaborates this argument, contrasts it to the technocratic view of the role of expertise in politics, and specifies alternative hypotheses. The environmental negotiations within the context of EU enlargement provide an empirical ground for testing the relevance of the participatory and technocratic approaches. By establishing the role of participation in assessment processes, the analysis sets the stage for addressing the even more difficult question of achieving such participation in practice. The conclusion of the paper engages this issue in a discussion of the policy implications emerging from the theoretical and empirical analysis.

## 2. Assessment Participation and the Credibility of Information to Multiple Political Audiences.

Under what conditions can assessment information become accepted as a common basis of knowledge among actors with divergent interests? Is knowledge best engaged in decision making from the ivory tower of the expert establishment, or through the active involvement of relevant political viewpoints? This debate dates back to Plato and Aristotle, and persists in the literature and public discourse today. Writing in the 1960s about the role of scientific advice in

American politics, Fischer (1966) emphasizes the limitations that stem from the homogenous make of the President's Science Advisory Committee, and recommends broadening the expertise base of the institution. At approximately the same time, Harvey Brooks (1964) points out that criticism about the lack of sufficient representation in high-level advisory committees are "beside the point." It is essential to remember, Brooks argues, that "...scientific advisory committees are not legislative bodies, that the ability to reach a large measure of consensus and settle matters by a good deal of give and take in rational argument is much more important to the policy-maker than assurance of equal representation for all the "estates" of science and technology." (81). Recent research on the role of international assessment in climate politics similarly flags the importance of participation for shaping the credibility and acceptance of assessment information (Agrawal 1997, Miller et al.1997, Parson et al. 1997), but also underscores the tension between broad political authorization and the need to preserve scientific neutrality and excellence (GEA 1997).

My analysis seeks to disentangle this ambiguity and to establish the relative importance of participation in international environmental assessments. Drawing on theoretical literature, which examines the communication of knowledge in political environments[5], this paper will specify the mechanism through which participation affects the political acceptability of assessments. It advances the proposition that the acceptance of knowledge by multiple actors with divergent interests depends critically on broad political consultation in the expertise-generation processes.

The main argument is founded on an understanding of policy-relevant knowledge as contingent and socially constructed (Jasanoff 1990, Haas, E. 1990, Haas, P. 1997, Wynne 1996). This view posits that knowledge can be socially interpreted, and arriving at a consensual understanding of causal relationships involves an intense process of expert communication, negotiation, and compromise. It is only such understanding about the nature of knowledge that leads to the expectation that political representation in an assessment process would matter for effective consensus-building and reducing uncertainty as a basis for policy-making and cooperation. According to this perspective, the credibility and legitimacy of expert advice is critical for its uptake by political actors. Furthermore, the resources that are most relevant for establishing the credibility of interpretable knowledge are seen as contingent to the situation at hand . As Shapin (1996) points out: "...the description or explanation of credibility has got to specify the credibility of what and for whom" (261).

It is, thus, important to underline that this paper deals with the role of expertise in one particular stylized situation. It analyzes the communication of knowledge to political actors with divergent interests, who have asymmetric information and incentives to manipulate information strategically. Under such circumstances, by what criteria would potential users of expertise judge it as an acceptable basis for decision-making? In a world of interpretable knowledge and a limited rational capacity to objectively evaluate the technical merits of the expertise provided, the intended audiences will tend to evaluate the quality and adequacy of information on the basis of some easily observable elements of the process through which it was generated. The characteristics of the messengers, for example, are likely to be important for discerning the reliability of the message. When the message is addressed to multiple actors who may have strategic interest to interpret uncertain causal information in ways to further

their political objectives, the ability to represent relevant view-points in the assessment process would be crucial for its effectiveness as a tool of consensual knowledge building. Such representation would improve the perceived credibility, legitimacy, adequacy, and relevance of the knowledge-building exercise, increasing the likelihood of its overall political acceptance.

The credibility of assessment information will be enhanced by the involvement of experts trusted by actors with different policy preferences and ideological leanings. The strategic incentives for such experts to misrepresent private information to that particular audience would be smaller, since they share similar worldviews or policy objectives (Krehbiel 1991, Crawford and Sobel 1982). By contrast, an expertise-generation process representing only a single group from the political spectrum will lack legitimacy and credibility in the eyes of excluded audiences. The message communicated will be easily attributable to a set of strategic interests. The more skewed the representation of political views towards a single end of the political spectrum, the less informative and acceptable the communicated knowledge would be. An assessment report by the Global Climate Coalition, for example, will be credible to actors with similar preferences, but will be easily deconstructed by excluded interests, and unlikely to serve as a basis for common understanding. Because of the interpretable nature of uncertain knowledge, even seemingly "neutral" expertise building processes will not be immune to deconstruction, especially when political stakes are high. However, if the knowledge-building process itself allows for negotiations of science not only among experts but also between experts and political interests, the incentives for strategic interpretation of the message will be smaller[6].

The creation of broadly participatory processes in which policy relevant knowledge is "negotiated" may encounter a range of difficulties, however. Such broad participatory approach may be inhibited by extreme polarization of interests. Involvement of multiple actor with extreme preferences might not enhance the informativeness and adequacy of the assessment information. If these perspectives can find no middle ground, the assessment process would send predictable and conflicting messages, which would make it uninformative as a whole (Krehbiel 1991). Another important obstacle to creating a highly participatory assessment process might be the lack of expert and institutional capacity, which would allow adequate participation, while maintaining a sharp boundary between science and policy to safeguard the scientific reputation of the assessment enterprise.[7]

The nature of participation will also affect the perceived quality and adequacy of assessment information, and thus, its acceptance by intended audiences. A technocratic understanding of the role of expertise in politics would insist that attempts to engage political perspectives in assessment processes may require compromises that would undermine the quality of the technical enterprise. It is possible to argue, however, that when dealing with problems that span boundaries and political divisions, an adequate analysis will require a wealth of information and observations, which would be facilitated by broader involvement. Such representation will be at minimum efficiency enhancing. Often relevant political actors have private information and special knowledge, and involving such local expertise will tend to improve the factual adequacy of assessments. It will also ensure against adopting erroneous assumptions and omitting important variables, thus improving the robustness of the analysis (Miller 1998, Fischer 1966, Bader 1998).

Ignoring local specialized knowledge can, furthermore, undermine the value and legitimacy of expert analyses for groups, which are excluded. Brian Wynne's account of local attitudes to official scientific advice regarding radioactive soil contamination in the Lake District of England emphasizes that one of the critical failures of the scientific establishment was that it "...did not recognize the value of the farmers' own expertise, nor see the need to integrate it with the science in order to manage the emergency properly" (Wynne, 1996, p. 36). The disregard of farmers' knowledge about their environment and management practices fundamentally undermined the perceived quality and trustworthiness of advice coming from London: "...the scientists were exposed as ignorant and uninterested in local realities, ... imposing false assumptions about agency on local people."(34). Examples of similar criticisms are also abound in the environmental and development aid literature. Disregard of indigenous knowledge about local conditions and practices has often lead to mistrust in development advice, and even failure of environmental and development projects, which in turn can reinforce the unwillingness to consult international expertise (Shiva 1993, Keohane et al., 1996, Miller 1998, Ostrom 1990). Failure to include less powerful actors in a process intended to build common causal understanding can perpetuate the perception of hegemonic imposition of expertise, which could fundamentally undermine the willingness of weaker parties to use science as a basis for elaborating common strategies to deal with global environmental problems (Wynne 1998, VanDeveer 1998).

Finally, the perceived relevance of assessment information is also dependent on the ability to involve multiple viewpoints in problem definition and analysis (Fischer 1966, Miller 1998). Such consultation will ensure that the questions asked resonate with the priorities of intended audiences, and that the advice will not be discarded as irrelevant. The experience with western environmental aid projects in Eastern Europe provides a telling example in this respect. Dominated often by technical components, such projects were frequently criticized for being "supply-driven," and answering questions that were of interest, or within the technical purview of funders, but of little immediate significance in the societies for which they were performed (Connolly et al. 1996).

This analysis suggests that the nature of participation in assessment processes is likely to affect their ability to communicate information to diverse audiences through multiple mechanisms. Drawing on these propositions, the following testable hypotheses can be specified:

H1. Everything else equal, the acceptance of assessment information by multiple audiences will be greater, the greater the heterogeneity of the participants in the assessment process. Furthermore, ensuring representation of the different sides of the policy spectrum is a necessary condition for assessments to gain acceptance with all significant actors.

This hypothesis implies that of the multiplicity of assessments available in the stylized context described above, actors will tend to trust and use more the ones in which they have been involved in one way or another. More broadly participatory assessments are more likely to be trusted and used by diverse audiences, contributing to the creation of consensual knowledge and the reduction of informational asymmetries.

While it might seem intuitive that participation increases the political acceptability of the assessment processes, this aspect of assessment design is often not sufficiently recognized. A competing view is provided by the technocratic approach to the understanding of the role of science in politics, and as Jasanoff (1990) points out "assuring the independence of research is one of the cardinal objectives of the technocratic vision, as well as the least controversial."(205). Applied to the issue of the role of environmental assessments in international politics, the "technocratic" account would assume that the more technical and politically-detached the composition of the assessment process is, the greater will be its legitimacy, political credibility and likelihood of acceptance. The technocratic logic provides a basis for an alternative to the participation hypothesis:

A1 The more technocratic and politically neutral the make of an assessment process, the more informative the assessment will be for heterogeneous political audiences, everything else equal.

This hypothesis implies that assessments conducted by a third party with recognized technical capacity are more likely to be used in strategic political interactions and negotiations than assessments organized with the active involvement of the interested actors. "Third party" assessments will also be more broadly accepted than assessments involving participant with identifiable political leanings, since their credibility will be less affected by the nature of the audience.

In order to provide systematic evidence on the validity of the hypotheses specified above, I shall examine the role of economic assessments in the process of approximation of the EU environmental aquis in Eastern Europe. The environmental approximation negotiations between the European Union(EU) and candidate Central and East European countries (CEECs) are characterized by interaction of multiple actors with divergent preferences, uncertain information about policy-outcome relationships, common interest to supply information as a basis for cooperation, and incentives to use knowledge strategically in international and domestic bargaining. If the above analysis is correct, ensuring a broad involvement of political perspectives in economic assessment processes will be a key condition for the broad acceptance of cost assessments as a basis for political debate, and in the negotiation of approximation strategies.

## 3. EU Enlargement, Environment and Information.

EU membership has been a goal of high political priority for Central and East European Countries since the dramatic changes in 1989. In the early 1990s, the East European states signed agreements with the EU specifying the terms of future accession. The 1993 Copenhagen Council of EU Foreign Ministers confirmed the commitment to future enlargement and established three general criteria for accession: i) guarantee of democracy, rule of law and human rights; ii)existence of a functioning market economy; and iii) ability to take the obligations of membership, including the approximation of the EU aquis (European Council 1993). A common understanding about the implications of EU enlargement for both current and candidate members is a necessary condition for further expansion of the Union. Information exchange is a key aspect of the pre-accession preparations of CEECs.[8] It was only after a comprehensive evaluation, prepared by the European Commission, of the ability of the

associated countries to meet the Copenhagen criteria in the near and medium term, that the Luxembourg Council of December 1997 recommended the opening of accession negotiations with Poland, the Czech Republic, Slovenia, Hungary and Estonia, while maintaining pre-accession preparations and communication with Bulgaria, Slovakia, Romania, Latvia and Lithuania[9].

The environmental policy agenda of East European states is considerably influenced by the need to approximate and implement the environmental legislation of the EU. It is also clearly understood by all parties that meeting EU environmental standards will pose a significant financial, administrative and institutional burden for accession countries. A number of economic studies are being produced to assess the cost of alternative strategies for EU law implementation in different environmental sectors.

The demand for economic expertise is driven by the need to formulate national strategies for transposing and implementing EU legislation. There is a great degree of uncertainty about what institutional, technical and financial options are available to implement EU environmental directives, and what their effect will be on key economic sectors. Furthermore, the magnitude of investment to comply with legislation in certain areas such as water quality, air pollution and waste management, provides an additional rationale for using economic analysis to make these investments in the most cost-effective manner possible.

Economic assessments are also demanded internationally, in the context of accession negotiations. For the most costly environmental directives, the CEECs expect to negotiate long transition periods for coming into compliance with EU standards. In order to advance their case, however, the candidate countries need to present at the negotiations table credible estimations of the financial measures that will be required to implement the aquis, and to demonstrate a credible commitment to an implementation strategy that all parties regard as realistic. Estimates of the costs that will be required to implement EU directives might be used strategically not only in the negotiations of transition periods, but also for determining the use of Structural Funds to help new members comply with environmental directives. The channeling of structural funding to CEECs, and the reshaping of the rules and procedures for use of the Structural Funds is a particularly sensitive issues for some current members which are the main beneficiaries of such financing and the main opponents to further enlargement of the Union.

The political demand for approximation options assessments is paralleled by a growing supply of costing assessments. Such studies are financed and prepared by a range of actors: by the EU through its technical assistance programs and the DISAE facility; by national governments and industries in cooperation with national and foreign think tanks; by international research institutions (IIASA), and by international organizations (EBRD, the World Bank).

In this context, economic assessments are expected to serve as instruments of expertise building and communication, which will facilitate the design of environmental approximation strategies that are credible abroad and implementable at home. The European Union provides considerable amount of funding for such studies, channeled mainly through the DISAE facility. The rational behind the commitment of resources to economic expertise building in Eastern Europe is clearly specified in DISAE documents: "Credible costing data will be crucial to

national administrations as they seek to persuade and reassure both their national parliaments and the general public about the benefits and need to support the reforms required by the environmental approximation process. Costing data will also form a central element in the accession negotiations between the European Commission and the Associated Countries. Investments required and investments made will form an important measure of both progress and commitment, and may also be used by Associated Countries to argue for derogation and considerations for special national circumstances."(DISAE 1997b). In order to fulfill these functions costing information will have to reach and be accepted by a multiplicity of actors domestically and internationally. What characteristics of costing studies will ensure such effective knowledge dissemination? Is it desirable for cost assessment processes to involve multiple viewpoints in order to reach the multiplicity of intended users? Or is it likely that politically detached, third-party assessments will find broader hearing and resonance?

In order to answer these questions, I shall examine the use of a range of assessments in the political negotiations surrounding the adoption and implementation of EU air-quality legislation in two East European countries: Poland and Bulgaria. By focusing on one issue (approximation of air protection regulations) and comparing the use of different assessments by relevant actors within each country, I will be able to control for contextual factors, which might influence the acceptance of scientific knowledge, while varying the characteristics of assessments only. Poland provides an example of a CEE country with already well developed capacity in conducting economic analyses, and where significant amount of assessments of the cost of EU environmental approximation have been carried out. This case will allow me to examine a relatively large sample of economic studies, and determine empirically the relevance of political involvement for the acceptance of assessments by diverse political groups.

In Bulgaria, on the other hand, the establishment of environmental economics as a policy-relevant discipline is a relatively recent phenomenon, and the institutional infrastructure to support such research is weak. By choosing two CEE countries with markedly different domestic capacity to perform economic assessments, this study will also make an important step towards disentangling the importance of expert and institutional capacity for establishing a highly participatory assessment process. The empirical part of the paper is, thus, designed in such a way as to elucidate not only whether and how participation matters for the acceptance of assessment information, but also to explore to what extent differences in expert and institutional capacity might affect the ability of actors to forge a highly participatory knowledge-generating process.

The dependent variable of the study is specified as **the acceptance of information communicated through costing assessments by relevant political audiences.** Important political players can evaluate a costing assessment as more or less useful and acceptable source of information. Different actors may find different uses for information that they find acceptable. Such information can serve to inform or reshape their interests, inform their bargaining strategies, or simply serve as a focal point of political negotiations. Rather than providing an extensive discussion and illustration of all the possible uses of economic assessments, this study will focus on determining the extent to which economic expertise and analyses have mastered broad political resonance. Such a resonance is an important condition for forging a political debate and negotiations on the basis of shared knowledge. In order to collect information on the acceptance of different economic assessments, I conducted

interviews with representatives of political groups and institutions that are important players in the approximation of EU air quality directives: officials from the Ministries of the Environment, representatives of the energy sector, Parliamentary representatives; representatives from the European Commission, and environmental advisers.

To measure the key explanatory factor - **level of political involvement in an assessment process** - I use broad criteria which includes not only the authors and sponsors of the assessments, but also any actor group that was consulted (either as a source of data and expert opinion, or in reference to previous work which was used in the assessment) during the assessment process. The results of the case studies are presented in the following two sections.

## 4. Reducing Sulfur Emissions in Poland: Who Pays, How Much and When?

In the 1980s, Poland was one of most polluted countries in Europe. It also contributed significant amounts of transboundary air pollution, being the third biggest source of SO2 emissions only after the Soviet Union and the German Democratic Republic[10]. Not surprisingly, the environment was high on the political agenda immediately after the collapse of the communist regime, and air pollution was among the immediate environmental priorities[11]. The approximation of the EU environmental aquis has provided an additional impetus for reform. However, any discussion of the environmental approximation in three issue areas - air, water and waste - inevitably evokes the question of the high cost of compliance.[12]

In the field of air protection, Poland has made a significant advance in improving its environmental performance. Since 1990, the total emissions of dust, SOx, and NOx have dropped dramatically (see table 1, annex 1). This decline in the emission of noxious substances was partly a side-effect of economic downturn and shutting down of some of the most obsolete enterprises, but also a result of considerable investment in coal purification, desulpharization installations, and coal-to gas conversion in many urban districts heating systems (Nowicki 1997). Despite these achievements, and as a result of the gravity of the initial situation, air pollution problems in Poland are far from resolved. A comprehensive report on the state of air pollution policies indicates that in many areas, the ambient air-quality standards and concentration of particulates are above Polish and international standards. Poland is still among of the largest sources of SO2 emissions in Europe, an in large parts of the country acid precipitation is higher than "levels considered as critical for ecosystems."(Karaczun 1996, p. 30). The same report also points out that with current (1996) air pollution policies, the projected emission levels of SOx will not conform to the requirements of the Second Sulfur Protocol of the LRTAP Convention[13].

The need to achieve close approximation with EU ambient and emission standards has raised the salience of the problem of sulfur emission reductions in Poland, which is considered the most important part of a strategy aiming at compliance with EU air pollution regulations. Considerable attention has also been given to the question of further reduction of SOx emissions and achieving the emission targets set by the Second Sulfur Protocol[14]. Compliance

with the Second Sulfur Protocol had been viewed as important for improving the environmental image of the country and demonstrating its commitments as a future citizen of Europe (Levy 1993). In 1995, the Polish President singed the Protocol, but industrial interests have successfully resisted Parliamentary ratification of the treaty.[15] Environmental authorities see an agreement with the power sector as a necessary condition for designing an implementable strategy for complying with the Second Sulfur Protocol and EU sulfur emission and ambient quality standards. Costs assessments of alternative options for achieving these standards are expected to be instrumental in forging a dialogue with industry and the EU, and in designing a credible approximation program. This expectation was clearly stated by a representative of the Office of European Integration at the Polish Ministry of the Environment: "The Commission points out in the Opinion that it does not expect associated countries to fulfill all elements of European legislation by the time of accession, but expects to have a realistic and credible implementation program. The EU has underscored several times the need for credible commitment to meeting the environmental requirements of membership. By undertaking a plan and a study of the cost of complying with the Second Sulfur Protocol, we are signaling a credible commitment. This is part of out integration strategy. Another part is strengthening the capacity of the environmental inspectorates." (Panek 1998)

A number of studies are already carried out to assess the costs of reducing sulfur emissions in Poland towards meeting the obligations of the Second Sulfur Protocol and the EU Large Combustion Plant Directive. Table 2 indicates that these assessment processes are characterized by different participation and institutional context in which they are embedded. Two of them (P1 and P2) are done to service the power sector. They are commissioned and prepared by the Polish Power Grid Company(PPGC), with the assistance of expert teams from the Polish Academy of Science, and an Austrian Consulting firm Modelpol. Another set of economic studies(P3-5), are typically financed by an international organization for the Ministry of the Environment, and are intended to inform the environmental approximation process in Poland. These studies are authored by Polish teams of experts (sometimes in collaboration with western consultants) and are characterized with wide involvement of actors with different political interest. A third category of assessment (P6 – P9) are sponsored and completed entirely by international organizations. The assessments in this third category usually cover several or all accession countries, but also have specific estimates for Poland.

In order to establish which of the multiple assessments available are regarded as acceptable basis of knowledge and policy cooperation, I interviewed representatives from relevant political groups and institutions, namely: Ministry of the Environmental, Natural Resources and Forestry[16], the Polish Power Grid Company(PPGC), the Ministry Of the Economy, Parliamentary representatives, representatives from the European Commission, and environmental advisers to the Polish government and Parliament.

The two studies commissioned by the PPGC[17], and conducted by PPGC experts in cooperation with outside scientific organizations, were never designed to serve as a tool in EU environmental approximation and negotiations. They were undertaken to inform the position of the power-generation sector with respect to the requirements of the Second Sulfur Protocol, and to serve as a basis for an inter-ministerial agreement on a program for SO2 reduction up to the year of 2010[18]. I included these cost analyses in the sample, however, as an illustration of a knowledge-building process, which addresses principally the same question as the other

assessments cited in table 2, but is designed in such a way as to serve the informational purposes of one or two important actors only. The study, while being highly credible and useful for the power sector, does not reduce domestic and international informational asymmetries. Nor does it enhance a common understanding of the problem. At the same time, the PPGC analysis establishes an important reference point for any subsequent assessments of the cost of meeting the European SOx emission reduction requirements.

Unlike the PPGC studies which address only a single, albeit important, audience, the PHARE and the World Bank assessments (P3,P4) are intended to reach multiple audiences and to support the elaboration of a credible approximation strategy. Characteristic for both these assessment processes is the involvement in direct and indirect ways of key actors with distinct political interests. This participatory aspect of the projects was a matter of deliberate design. The PHARE assessment report underscores that in developing the study, the experts have taken "a due account" of the Ministry's interest "to have a practical and user-friendly tool to measure costs which would be credible to the domestic polluters and to the partners in the European Union."(Krakow Academy of Economics, p.9). Similarly, the draft initiating memorandum of the World Bank identifies the following as primary objectives of the assessment: "To help Poland develop a credible strategy for coming into compliance with EU legislation...to stimulate policy dialogue by demonstrating the costs of different institutional arrangements for planning the necessary investments [and]...to stimulate public debate by helping the government disseminate the results of the strategy..."(World Bank 1997b, p.5).

The main way in which the two studies have been able to advance the task of involving multiple domestic audiences is by anchoring these projects within a team of economists with excellent academic reputation at home and abroad, and with established institutional and personal channels of communications with domestic groups and international organizations. For example, the team of Polish experts responsible for carrying out the World Bank assessment was engaged in a large analysis for the PPGC in 1992-1993, supporting the preparation of the "Energy Policy of Poland. Program up to the year 2010," and is currently developing a study for the Ministry of the Environment to inform its position in the LRTAP negotiations of a new NOx protocol. As a result of such involvement, the institute has established good relations with different domestic audiences, and its expertise is trusted by key actors such as the PPGC and the Ministry of the Environment. These experts are also highly regarded by other environmental economists in Poland. They have successfully competed for research support from the National Committee for Scientific Research, and their previous work related to the energy sector was very widely used by different scientific institutions in industry and government. Similarly, the Krakow Academy economists have done work for both the industry and the Ministry of the Environment, and have established excellent academic reputation with a range of research and advisory bodies in Poland and abroad.

The extensive contacts of the specialists involved in the assessment processes, their high reputation among scholars and trust on the part of important political actors, enabled them to involve relevant audiences in both direct and indirect ways. One aspect of the PAHRE study, for example, was the evaluation of the political feasibility of a tradable permit scheme for achieving SO2 reductions. This political feasibility assessment involved consultation with a range of important actors: members of Parliament, officials from the Ministry of the

Environment, the PPGC, and the Ministry of Industry and Trade, as well as power plant managers (Krakow Academy of Economics 1996, Annex 9, p. 231). The involvement of a number of relevant groups, even indirectly, together with the central role of well-established and highly reputable domestic academic institutions and experts, enhanced immensely the acceptability and legitimacy of the study. Similarly, in preparing the World Bank study, the team of Polish experts built on some of its previous analyses done for the energy sector, consulted representatives of the Ministry of the Environment and the PPGC, and presented some of the preliminary results of the study at a seminar, which involved representatives of the government, enterprises, and scientific institutions.

The participatory aspects of these two studies enhanced enormously their perceived legitimacy, relevance and credibility in the eyes of different users. It was often pointed out that for internationally financed studies, it is very important what the team of authors is and whether they are known and trusted domestic experts. One official from the Ministry of the Environment underscored that what makes the World Bank study credible and useful for the Ministry, is the fact that "it involves a lot of Polish specialists, and builds on work that was done before in Poland. For example, it uses and cites the analyses done by the Polish Power Grid Company, as well as the study done of the Krakow Academy of Economics...In fact, the World Bank report was prepared by some of the same experts involved in earlier Polish studies."(Wesolowska 1998) Similarly, a prominent economic adviser to the Ministry of the Environment identified the report completed by the Krakow Academy of Economics as an example of a very good study, funded by the PHARE, but undertaken by number of excellent Polish economists, who have solid knowledge of previous work done in Poland, adequate access to data, and understanding of the political objectives of policy makers (Zylicz 1998).

As a result of all these considerations and the ability of the World Bank and PHARE assessments to involve important actors, these studies have reached multiple audiences in Poland. Officials in the Ministry of the Environment dealing with EU approximation and air quality issues referred to these analyses often, and identified them as the most relevant and useful for their work. Both studies were known by the representatives of the PPGC and the Ministry of the Economy, who however, did not feel it is appropriate to discuss the implications of this economic work for future strategies of the sector. Similarly, both studies and their Polish authors were know and highly regarded by economic advisers to the Ministry of the Environment, and by specialists at the Bureau of Research at the Chancellery of the Sejm[19].

It is early to judge to what extent the results of these costing assessments will affect governmental decisions, as well as the Polish negotiations strategies and leverage. Economists, as well as the intended users of costing studies, are aware of the limitations of their estimates, stemming from different and often bold assumptions that lead to widely divergent results as well as interpretations. Despite these limitations, the World Bank and PAHRE assessments of the costs associated with approximation of EU air quality legislation in Poland, have managed at least to spur a discussion and common understanding about the costs and benefits of environmental approximation, and have made the issue a hot topic not only for Polish environmental economists but also for other relevant actors such as the National Environmental Fund, industry and Parliament[20]. They have succeeded in reaching multiple domestic and

international audiences, increasing the transparency of interaction, and moving the agenda towards consensus building and cooperation.

While the participation of domestic experts and institutions with established working relations with political actors was essential for the relevance, adequacy, and legitimacy of the PHARE and World Bank-sponsored studies at home, the backing of highly visible international institutions contributed to the international visibility and credibility of this work. These two assessments are known and well regarded within the EU. It is indicative that a new DIASAE project, which is now in preparation and which includes cost estimates for a number of EU directives, is subcontracted to the same team of Krakow Academy economists which was involved in the PHARE assessment.

In the international arena, a range of other economic assessments are also cited and used in reference to the approximation process (P6-9). Although these analyses involve estimates directly applicable to Poland, they are rarely a point of reference for domestic actors and even for the Ministry of the Environment. An interesting example in this respect is a study prepared by the International Institute of Applied Systems Analysis (IIASA) for the European Environmental Agency (P7). IIASA is an independent expert organization of high international standing, known for its authorship of the RAINS model which came to be established as a central tool in LRTAP negotiations, and now in the development of new air quality directives in the European Union. If the technocratic understanding of policy relevant knowledge were right, the IIASA assessment should be the one most readily used by multiple actors in the environmental approximation preparations and negotiations. Indeed, a report commissioned by the Environment Directorate of the European Commission (DGXI) and intended to provide a review of the major compliance cost analyses within the EU approximation context, identifies the IIASA study as the most useful in the issue area of air pollution, "the best reference point," because it covers all CEECs, a large number of sectors (power generation, industry and transport), and offers the most complete set of cost estimates for environmental approximation measures (European Commission DG XI, 1997, p.62). The IIASA study, reviewed by the newsletter of the Swedish NGO Secretariat on Acid Rain, has also attracted the attention of the international environmental NGO community, and was presented at the 1998 Conference of Environmental Ministers in Argus, Denmark. And yet, despite its visibility internationally, this assessment has, so far, attracted little attention and spurred no discussion among political actors in Poland.

Similarly, the DGXI review of costing studies (P8) mentioned above, was explicitly commissioned to increase the knowledge base within the approximation process, but did not manage to reach relevant audiences in Poland. The document was evaluated by Polish economists for the Ministry of the Environment, and criticized for inadequacies and failure to reflect key studies done for Poland, a fact that seemed to fundamentally undermine the legitimacy and the perceived usefulness of the work (Peszko 1998).

The message emerging from the Polish experience with cost assessments for achieving air pollution standards seems to be clear - doing is believing - having multiple political perspectives involved in a knowledge building process enhances its credibility and communication power to multiple audiences. The two assessments that have most effectively

reached domestic and international audiences to spur a discussion and consensus building are of the "participatory" rather than "technocratic" type.

But is it possible that the PHARE and the World Bank sponsored assessments were accepted by multiple actors as a basis for debate and consensus building, not because of their design and outreach, but because of close correspondence between assessment results and the already predetermined interests of political actors? Such an account for the broad resonance of these analyses is unlikely since it is difficult to imagine that a single set of results can be so versatile as to correspond exactly to the predefined interests of environmentalists, industry, and governmental and international official. In addition, while it will be politically naive to argue that economic expertise can fundamentally change political interests, it is possible to assert that broadly participatory economic assessments have helped reshape the political debate in Poland. Only a few years ago, the position of the power sector was that complying with the Second Sulfur Protocol is too costly for ratification to be feasible[21]. Now, the debate has shifted towards a discussion of cost-minimizing strategies for compliance and a search for middle ground and informed compromise. In this process, economic ideas set an important focal point for bargaining and knowledge building.

A shared understanding seems to be emerging that the environmental negotiations between Poland and the EU should start with an emphasis on ambient quality standards, and seek a compromise regarding the methods of their implementation. Such an approach is considered attractive since it would allow for the application of cost-efficient economic instruments, which are more widely used in Poland than in the EU, and are likely to alleviate the financial burden associated with the adoption of EU environmental regulations (Zylicz 1998). The desirability of such a negotiation strategy was highlighted in interviews not only with economists and environmental advisors, but also with representatives from institutions and groups which are traditionally resistant to introducing the notion of economic efficiency in environmental policy making (for example, environmental NGOs and the Ministry of the Environment). It is not clear whether this position will be carried to the EU negotiation table and whether it will be established as a focal point for international bargaining. However, to the extent that consensual knowledge building and information dissemination is important for reaching implementable cooperative agreements, a set of broadly participatory cost assessments have managed to fulfill this role in Poland.

The overview of the different economic assessment done for Poland also demonstrates that building such a participatory process involves complex interactions between political actors and technical experts, and requires a considerable institutional and expert capacity to facilitate such interactions without sacrificing academic quality. The comparison of the Polish experience with economic assessments to that of Bulgaria, further demonstrates the role of domestic institutional and expert capacity for successfully forging a participatory assessment process.

## 5. Reducing Sulfur Emissions in Bulgaria. What Are the Options?

Combating air pollution problems is a high environmental priority for Bulgaria both because of its significant health impact and its high international visibility. In 1996, The Air Quality Law was adopted by the Parliament, after lengthy and concerted pressure on the part of the Ministry of the Environment (Georgieva and Moore 1997). The Ministry, in its efforts to promulgate the Law, was facilitated by the argument that this will be an important political and diplomatic act of demonstrating commitment to compliance with the LRTAP convention and its protocols. Because of persistent political instability and economic crisis, however, the Bulgarian government did not advance the air protection agenda much further. The implementation of the Air Quality Law requires the adoption of a range of executive orders to specify admissible emission limits, which have been delayed for almost three years now.

As a consequence, the initial improvement in air quality associated with economic decline was reversed after the year 1992 (See table 3). The intensified relations with the European Union as part of the pre-accession strategy, and the election of a reform-oriented government in 1997, provided a new impetus for advancing the environmental agenda. The task of approximating EU environmental legislation is a central priority for the Ministry of the Environment and Water Resources. However, the current trend of increasing levels of SOx emissions will make compliance with the Second Sulfur Protocol and the EU air quality directives difficult to achieve. The energy sector is the main source of air pollution, responsible for close to 80% of total SOx emission. The reduction of air pollutant emissions to achieve European air quality and emission standards will require high levels of financing for this sector, which relies mainly on local brown coal with high content of sulfur and low calorific value, and has so far undertaken no investments in desulpharization equipment. Similarly to Poland, the high cost of achieving emission reductions for the power-generation industry is a major stumbling block to improving air protection and applying the requirements of EU directives and the LRTAP protocols. The elaboration of a credible approximation strategy for air quality directives in Bulgaria will require the involvement of the energy sector, and the serious consideration of alternative strategies for minimizing the cost of approximation.

Cost assessments of different policy instruments can clearly have a role in the dialogue between relevant domestic and international actors to ensure cooperation towards achieving European air quality and emissions standards in Bulgaria. There are a number of studies, which consider the cost of different strategies for achieving the targets set by the Second Sulfur Protocol (table 4). However, none of the studies completed so far have been able to reach and engage in discussion all relevant audiences.

As table 4 indicates, four of the studies available (B6-9), are the same international assessments which cover all CEECs, but include estimate for each country. Similarly to the case of Poland, these four studies are not used or discussed in the domestic context of Bulgaria, despite the fact that some of them (the DGXI review and the IIASA study) are quite visible internationally.

The three studies, which consider exclusively the case of Bulgaria (B1-3), have not been successful in reaching actors with different preferences and forging a debate and common understanding of the problem. Typically, each of these assessments is undertaken with the help of international funding and under the leadership of one set of domestic institutions, without much active involvement of actors with different policy preferences. This has resulted in the production of expert studies seen as credible and useful by the actors which requested them, or which were involved in their preparation, but unknown or considered inadequate by other political audiences.

The World Bank study (B3), requested by the Ministry of the Environment, is a good example in this respect. Following its efforts to move forward the air protection agenda in Bulgaria after the signing of the Second Sulfur Protocol, the Ministry was interested to have such a study completed by the World Bank as a tool of knowledge building and persuasion on the basis of which to start discussions with the energy sector. The then Deputy Minister summarized the rational behind this study: "We took the initiative and requested from Coopers and Lybrand and the World Bank to do a study of the alternative strategies for SO2 reduction, so that the energy sector will hear also the opinion of independent foreign experts, not only ours. All the energy sector had to do was to read this document, and to consider the options and alternative strategies as a basis for further political discussions. Our efforts, however, were to no avail. The study was largely ignored by the National Electricity Company(NEC) and the Committee for Energy."(Pelovski 1998) Clearly, putting an authoritative expertise stamp on an assessment report is not sufficient for communicating knowledge across actors with different preferences. Representatives from the office for pollution abatement in the NEC confirmed that the study was "supplied" to them, but challenged its adequacy and legitimacy: "The fact, that the analysis recommends coal to gas conversion for the power generation sector as the best abatement strategy shows complete unfamiliarity with local conditions and problems. A major difficulty with making economic estimates of the type presented in the World Bank study is that until you have a reasonably good energy-demand forecast, adequate country-based data on construction and operation costs of desulpharization technologies and on the cost of disposal of secondary products, it is very difficult to get good estimates. Estimates based on data from western countries are usually inadequate"(Shvabski 1998).

Similar criticisms were not voiced by the industry representatives about a number of other internationally funded studies(B1 and B2), that were produced in cooperation with the energy sector. Among them, the US DOE study(B1) was cited as the most useful for the NEC. It is based on data supplied by the sector, and conducted in cooperation with Bulgarian research organizations established to service largely the National Electricity Company and the Committee for Energy. The assessment of the cost of alternative abatement options, included as part of this study, is considered adequate, relevant, highly credible, and it informs to a great extent the current thinking of the pollution abatement department about possible strategies. This study, however, was not even mentioned by the MOE officials whom I interviewed, nor was it among the assessments consulted by the departments of Air Protection and European Integration.

The message that political actors tend to use expertise in the production of which they are involved either directly or through research institutions that they trust, is confirmed again for

the case of Bulgaria. This conclusion is further supported by the fact that the only analysis, which has been consulted both by the Ministry of the Environment and the Committee of Energy, is an internal governmental project for the specification of the emission standards for SOx, NOx, dust and CO from heat and electricity power stations. The project was carried out by the research institute of the energy sector, but with approval and coordination on the part of the Ministry of the Environment (Energoproekt 1996).

Contrary to the case of Poland, in Bulgaria, there is still no example of an approximation cost assessment which has managed to involve directly or indirectly relevant political actors in such a way as to advance a consensual knowledge building and cooperation domestically and internationally. A new DISAE-funded environmental approximation project for Bulgaria (B4), which includes a cost-assessment analysis for the most expensive EU directives, and a project sponsored by the Danish Environmental Protection Agency for air quality management in Bulgaria (B5), might have the potential to be designed in a more broadly participatory way. Currently, however, the DISAE study is still conceived of as a tool for enhancing the administrative and informational capacity of the Ministry of the Environment (Ministry of the Environment and Water Protection, 1997). It is subcontracted to an economic consultancy firm, which has good working relationship with the Ministry, but few contacts in the energy sector and Parliament. Even the information and training seminar, planned as a final phase of the project, is intended primarily to build the capacity of Ministry of Environment officials (European Commission, DG1A 1997; Bulletin of the Ministry of the Environment and Water Protection 1997). The experience analyzed in this paper demonstrates, however, that if the DISAE assessment does not evolve into a more broadly participatory process, it will have a limited role as a tool for knowledge building and information dissemination that enhances the goal of EU environmental approximation and international cooperation.

What seems to be missing in Bulgaria is the institutional and expertise capacity of the kind available in Poland, which can provide a basis for approximation assessments that involve multiple political audiences. There are no organizations in Bulgaria which have managed to build a high reputation of expertise in environmental economics, while maintaining working contact with diverse domestic groups. Each of the relevant interests have their sources of technical information, and international support has often been used by different sets of actors to advance their capacity and understanding of the problems, but not necessarily as effective means of communication. The presence of such network in Poland, and the willingness of economists to use it and to involve actors with different perspectives, was key for the high credibility of the Polish PAHRE and World Bank assessments, and for their role in forging debate and communication. Thus, while both cases provide evidence in support of the participatory hypothesis specified at the outset of the paper, they also raise a host of questions about the role of capacity building components in environmental assessments, which is a subject of other research agendas[22] and further exploration.

## 6. Beyond the economics of EU accession: conclusions and policy implications.

This paper started with the proposition, advanced by a range of international relations theories, that some shared understanding of cause-and-effect relationships of complex phenomena is an essential basis for successful environmental cooperation. The paper went on to explore what characteristics of knowledge-generation processes might make them acceptable to multiple audiences, and an effective tool for consensual knowledge building and communication. The theoretical analysis and the two case studies provide support for the view that expert advisory processes which allow for the participation of broad range of relevant actors are more likely to be informative and accepted by multiple audiences, and to forge a meaningful discussion and consensus building. Among the multiple costing studies reviewed, only those, which managed to involve important stakeholders and to draw on their experience and private information, were perceived as sufficiently credible, legitimate and adequate to be accepted. Similar empirical findings established in different cases increase the confidence in this conclusions (Bader 1998, Agrawal 1997) [23].

The empirical analysis also shows, however, that while wide political participation might be a commendable quality of an assessment process, it is often difficult to achieve. Sometimes, such failures of design are simply due to lack of appreciation of the fact that involvement of heterogeneous perspectives is an important aspect of the credibility of an expertise-generating exercise[24]. More importantly, however, the practical design of a sufficiently participatory assessment depends on the ability to embed the process within a rich institutional framework that would allow for the involvement of relevant audiences without sacrificing scientific and technical reputation.

These findings have important policy implications for the structure of international environmental assessments and for international advisory processes in general. The cases of Poland and Bulgaria demonstrate that for achieving broad acceptance of international expert advice, it is not sufficient to assure just any local participation. Skewed representation of domestic political viewpoints in an international assessment can be as ineffective as no domestic involvement at all. Embedding assessment processes in local institutions that can provide the necessary involvement of all-important perspectives is critical for the broad uptake of expertise. These cases also indicate that differential domestic capacity of countries may work against a "one-size-fits-all" formula of assessment design, even within a single issue-area. In some cases, the capacity building component of an assessment process may need to be significantly stronger and more developed in order for assessment information to reach all relevant audiences.

The requirement of a closely knit institutional and reputation framework within which to embed a highly participatory assessment process also implies that in certain issue areas and contexts, it might not be possible to achieve meaningful participation within the framework of a single assessment process. This will be especially true for global environmental problems that involve

a vast number of actors with different preferences. Climate change and biodiversity are examples of such issue areas. The institutional, technical and reputational requirements might be too great for the involvement of most relevant actors. Under such circumstances, multiple assessment processes, anchored at different levels, might be a way to achieve participation. Establishing channels of communication between parallel assessments could, in turn, accommodate *both the* need to capture knowledge from different loci of expertise, and to ensure the meaningful involvement of multiple users. An example of parallel existence of multi-level, but tightly linked assessment processes, is the national evaluation of the IPPC assessments undertaken in countries such as the Netherlands and Poland. Far from being a wasteful doubling of research efforts, such "assessments of assessments", may be a way to meaningfully involve key actors in a process which spans different political levels.

Assuring adequate political involvement in international environmental assessments is, thus, a complex but important task for enhancing assessment effectiveness. Its significance is likely to grow in a world of expanding information supply and increasing technical complexity of issues, where the characteristics of the messenger may become the single most important criteria to judge the quality and reliability of the message. By identifying the relevance of the participatory approach to integrating knowledge in international environmental politics, this paper prompts the conscious search for institutional mechanism that would ensure border representation without undermining the quality of technical analysis.

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## TABLES

**Table 1. Poland. Emissions of Air Pollutants (in thousand tons)**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **SO2** | **3210** | **2995** | **2820** | **2725** | **2605** | **2337** |
| **NOx** | **1280** | **1205** | **1130** | **1120** | **1105** | **1120** |
| **Dust** | **1950** | **1680** | **1580** | **1495** | **1395** | **1308** |

Source: The Central Statistical Office, Environment 1997, Warsaw.

**Table 2. Poland. Cost Assessments of Compliance with EU Acid Rain Legislation.**

| | Assessment | Sponsor | Authors | Actors involved |
|---|---|---|---|---|
| P1 | Least-Cost Investment Study for the Polish Power Sector. 1994 | PPGC | PPGC, PAS | PPGC |
| P2 | Program for SOx Emission Reduct. in Power Industry. 1995. | PPGC | PPGC, Modelpol SA, | PPGC, MOE |
| P3 | Poland. Compliance with the EU Air Pollution Emission Standards. Cost of Alternative Strategies for Reducing Sulfur Emissions. 1998 | World Bank<br>Rybnik Power Plant | -"EnergSys" Ltd.<br>-PAS | World Bank, MOE, EC/DG11, PPGC, Sejm Bureau of Research |
| P4 | Development of Cost Methodol. and Evaluation of Cost-effective Strategies for Achieving Harmonization with EC Environmental Standards. 1995 | PHARE<br>-for MOE | -Krakow Academy Of Economic<br>-Grontmij Consulting Eng<br>-Natl. Foundation for Env. Protection, Twente Univ. | EC/DG 11, DG1A MOE, PPGC, Parliam, power plants. |
| P5 | Costing and Financial Analysis of Approximation in Environment. | DISAE<br>-recipient MOE | Krakow Institute of Economics | N.A. - study under preparation. |
| P6 | Env. Standards and Legisl. in Western and Eastern Europe Towards Harmonization: Econ. Costs and Benefits of Harmoniz. 1994 | EBRD | IFO, Munich | ? |
| P7 | Application of the Current EU Air Emission Standards to the CEEC – An Integrated Assessment of Environmental Effects. 1997 | European Env. Agency | IIASA | IIASA, Europ. Env. Agency |
| P8 | Compliance Costing for Approximation of EU Env. Legislation in CEE countries – review of existing studies. 1997 | EU, DG XI | EPE asbl., EDC ltd. | DGXI |
| P9 | Estimation of Compliance Costs for the Approximation of EU Legisl. in CEE States. Guidelines for Country Studies. 1997 | DG XI | EPE asbl., EDC Ltd. | DGXI. |

**Table 3. Bulgarian. Emissions of SOx, NOx and Dust [in ktons]**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **SOx** | 2020 | 1677.9 | 1128.1 | 1425.7 | 1479.5 | 1497.3 |
| **NOx** | na | na | 229 | 238 | 326.8 | 226.1 |
| **Dust** | na | na | 423.1 | 381.9 | 352.5 | 358.0 |

Source: National Center for Environment and Sustainable Development

**Table 4. Cost Assessments of Compliance with EU Acid Rain Legislation – Bulgaria.**

| | Assessment | Sponsor | Authors | Actors |
|---|---|---|---|---|
| B1 | Bulgaria Clean Coal Utilization Technology Options Handbook" 1995 | US DOE | -Energy and Env. Rch. Ctr., Univ. of N. Dakota<br>-Energoproekt;<br>-TOTEMA | NEC, Committee of Energy |
| B2 | Technical and Economic Analysis for the installation of air pollution abatement installation in the heat power plants of Maritza Iztok. 1994 | Japanese Dev. Agency | JCI | -NEC<br>-Committee of Energy |
| B3 | Least-cost approaches to reducing emissions of acid pollutants. 1996 | World Bank | Coopers and Lybrand | -World Bank<br>-MOE |
| B4 | Assistance in the Development of an Environmental Approximation and Training Program for Bulgaria.<br>(In preparation) | DISAE | -EPE asbl.<br>-Club Economica 2000 | MOE |
| B5 | Environmental Approximation Measures For the Air and Water Sectors (not exact title)<br>in preparation | Danish EPA | N.A. | N.A. |
| B6 | Environmental Standards and Legisl. in Western and Eastern Europe Towards Harmonization: Econ. Costs and Benefits of Harmonization. 1994 | EBRD | IFO, Munich | EBRD |
| B7 | Application of the Current EU Air Emission Standards to the CEEC .An Integrated Assessment of Environmental Effects | European Env. Agency | IIASA | EEA,IIASA, DGXI |
| B8 | Compliance Costing for Approximation of EU Env. Legislation in CEE countries – review of existing studies. 1997 | EU, DG XI | EPE asbl., EDC ltd. | DGXI |
| B9 | Estimation of Compliance Costs for the Approximation of EU Legisl. in CEE States. Guidelines for Country Studies. 1997 | DG XI | EPE asbl., EDC Ltd. | |

## ENDNOTES

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[1] I am grateful to Bill Clark, Barbara Connolly, Nancy Dixon, Alex Farrell, Jill Jaeger, Sheila Jasanoff, Bob Keohane, Clark Miller, Ron Mitchell, Rob Stavins, Stacy VanDeveer, and Brian Wynne for stimulating comments and suggestions. I would also like to thank all individuals who provided me with invaluable support and information during my research trips to Brussels, Bulgaria and Poland.

[2]James Morrow(1994) identifies the combination of informational and distribution problems as a major obstacle to reaching cooperative agreements: "These two problems work against one another. Distributional problems create incentives to misrepresent one's private information in the hope of gaining what is likely to be a more favorable solution; yet, the actors require accurate communication messages to solve the information problem"(393).

[3] Consensual knowledge is defined here as "generally accepted understandings about cause-and-effect linkages about any set of phenomena considered important by society."(Haas, 21)

[4] Assessments are defined as a "social process by which expert knowledge related to a policy problem is organized, evaluated, integrated and presented in documents to inform policy and decision-making."(The Global Environmental Assessment Project, p. 53).

[5] See for example Jasanoff 1990, Shapin 1996, Wynne 1996, Krehbiel, 1991, and Crawford et al. 1982.

[6] Jasanoff (1990) advances this point. On the basis of extensive empirical analysis of the role of scientific advisory institutions in American regulatory politics, Jasanoff (1990) concludes that: "...when the stakes are high enough no committee of experts, however credential, can muster enough authority to end the dispute on scientific grounds."(234).

[7]See Jasanoff 1990.

[8]An essential part of the pre-accession strategy, elaborated by the European Commission, was the establishment of a "structured dialogue" to provide a framework for information sharing and discussions between EU and CEEC officials, the establishment of the Technical Assistance and Information Exchange office (TAIEX), and the strengthening of the PHARE program as an instrument of pre-accession support. Regular reports prepared by the Commission also increased the transparency of interaction as a basis for further cooperation. Within the environmental issue area, the DISAE facility was created to assist the accession countries in developing environmental approximation strategies by providing technical cooperation and advice.

[9] See European Commission (1997) and European Council(1997).

[10] See Andrzejewski et al. 1993, and the National Foundation for Environmental Protection 1997.

[11] See The National Environmental Program, developed by the Ministry of the Environment, Natural Resources and Forestry 1990.

[12] See The Financial Times 1998, World Bank 1997., and Committee for European Integration 1997a, 1997b.

[13] See the data presented in Karaczun 1996, p 23-24.

[14] The goal of meeting obligations stipulated by the Second Sulfur Protocol is taken as a proxy of a harmonization goals for standards related to SO2 pollution by a number of studies. It is estimated that the international agreement, which involves all European Countries, is compatible with EU standards. In some important aspects, however, the requirements of the SSP are more stringent than the EU Large Combustion Plant Directive. See Jankowski 1998 and Krakow Academy of Economics 1996.

[15] The 1995 document adopted by the government, "Assumption of power production policy in Poland till 2010" states that: "Meeting the requirements of this protocol will require significant financial investments. For this reason ratification of the Second Sulfur Protocol has to be preceded by a detailed analysis of economic effects and possible rate if its implementation in the existing economic situation of the country."(cited in Karaczun 1996, p. 53).

[16] "The Ministry of the Environment" is use in the remaining part of this section as a short hand to refer the Polish Ministry of the Environmental, Natural Resources and Forestry.

[17] The paper uses the name of the sponsoring institutions as a shorthand for referring to different assessments.

[18] See Ministerswo Ochrony Srodowiska, Zasobow Naturalnych I Lesnictwa, 1996.

[19] A research and advisory organization of the Polish Parliament

[20] See Eko Finance 1997, "Ile Kostue Unia?"

[21] See a statement made by the Ministry of Industry and Trade as cited by Karaczun 1996, p.53

[22] See Miller 1998.

[23] In a study of the role of Economic assessments in climate politics in Britain, the Netherlands, Germany, and the EU, Bader(1998) finds that policy makers tend to use commission research in the specification of which they have been involved. Independent economic assessments are often seen as problematic "insofar as policy makers are not familiar with the critical assumptions that were made." The study also revels that only research based on a broad inter-ministerial consensus is likely to be accepted by relevant ministries and used as an objective basis for policy-making, a finding which corresponds closely to the participation hypothesis advanced here.

[24] See for example, the discussion of the World Bank study for Bulgaria.

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