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Strengthening the Implementation of Environmental Agreements

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The Honorable Claiborne Pell
Chairman, Committee on Foreign Relations
United States Senate

The Honorable Dante B. Fascell
Chairman, Committee on Foreign Affairs
House of Representatives

In the last 20 years, nations have increasingly entered into international agreements to address a host of global and transboundary environmental problems, ranging from stratospheric ozone depletion to the threatened extinction of plant and animal species. While the development of these agreements is in itself noteworthy, we found, in a recent report examining eight major agreements, that they are not well monitored and, furthermore, that some parties to the agreements, especially developing countries, lack the ability to comply.[1]

Recognizing the seriousness of these monitoring and compliance problems, as well as other economic development and environmental issues, governments around the world met to address them at the June 1992 United Nations Conference on Environment and Development (UNCED). In order to help the Congress assess some of these issues, at your request, made prior to the conference, we and the Congressional Research Service (CRS) jointly held a symposium on strengthening international environmental agreements; panelists included officials from the Environmental Protection Agency (EPA), the Department of State, the World Bank, the United Nations Environment Program (UNEP), and UNCED and representatives of nongovernmental organizations. Reflecting the results of the symposium, as well as of our earlier report and other studies, this report (1) describes the extent to which information on the implementation of international environmental agreements is available, (2) examines the roles this information can play, (3) considers the function that incentives can have in helping countries implement these agreements, and (4) suggests means the Congress could employ to strengthen these agreements.

[1]International Environment: International Agreements Are Not Well Monitored (GAO/RCED-92-43, Jan. 27, 1992).

Results in Brief

Though parties to an environmental agreement have committed to implementing it and to reporting information on their implementation to an administrative secretariat that they have established, we found in our previous report that parties' reporting has often been late and incomplete. We also found that secretariats generally do not have the authority or resources needed to verify the information that is reported or to independently monitor and assess parties' compliance. Consequently, judging compliance, and determining the effectiveness of agreements, is difficult.

Improving the information available on implementation and public access to it is important because it can play essential roles in strengthening these agreements. As we pointed out in our earlier report, information on implementation provides the basis for bringing pressure on parties to live up to their commitments. Symposium panelists emphasized other important roles: Within a nation, information can increase public support for meeting these obligations. Furthermore, information can be used to target technical and financial assistance to countries in need, and insofar as reporting on implementation is linked to such positive ends, there is an inducement for parties to report. Panelists also underscored the important part nongovernmental organizations can play in analyzing and disseminating information.

Although developing countries' active involvement can be crucial in effectively addressing global and international environmental problems, these countries currently play a limited part in the development and governance of agreements and often lack the technical and financial capability to implement them as well. Panelists pointed out the desirability of incentives, such as technical and financial assistance, that increase participation by developing countries and their capability to implement agreements. The agreements themselves can provide for such incentives from the parties; international institutions and nongovernmental organizations can also be sources of assistance.

There are a number of means the Congress could employ to strengthen international environmental agreements. Through its responsibilities for ratifying treaties and for authorizing and appropriating funds for foreign assistance and international institutions, the Congress could establish goals for improving the availability of information on implementation, increasing public access to this information, and improving the ability of developing countries to both participate in and carry out environmental agreements.

Background

Dubbed the "Earth Summit," UNCED provided an opportunity for nations to, among other things, reach some consensus on methods of strengthening international agreements. Among the conference's products were the Rio Declaration, which contains basic principles for environmentally sustainable development, and a nonbinding action program entitled Agenda 21, which identifies specific measures to carry out these principles, including some measures aimed at improving the monitoring and implementation of environmental agreements. To monitor its implementation, Agenda 21 calls for the creation of the Commission on Sustainable Development within the United Nations system. Although its specific responsibilities and funding and staffing levels are as yet undefined, the Commission is intended to review government-provided information on activities undertaken to implement other international agreements as well as Agenda 21. In addition to the Rio Declaration and Agenda 21, two major international agreements—conventions addressing climate change and threats to biological diversity—were presented for signature at UNCED. The United States signed the climate change convention but did not sign the biological diversity convention.

The Congress was active in preparing for and attending UNCED and will continue to have a role to play in the aftermath of the conference. Numerous hearings were held during the previous year by a variety of committees; Members of Congress and their staff attended the UNCED preparatory committee meetings; and the House and Senate passed concurrent resolutions in support of the conference. The Congress will now be responsible for legislation and oversight related to U.S. efforts to carry out Agenda 21 and will have to ratify the climate change convention and adopt any legislation necessary to implement this agreement.

Information on Implementation Is Lacking

As we reported in our review of the monitoring and implementation of international environmental agreements, the number of international environmental agreements in which the United States participates, or in which it has a significant interest, has grown since 1972 from fewer than 50 to nearly 170. Like other international agreements, these agreements generally do not impose penalties for noncompliance. Instead, as noted earlier, their principal enforcement mechanism, in theory, is peer or public pressure generated from information on implementation that the parties themselves report to the agreements' secretariats. In general, these reports are the only formal source of information on implementation available to all parties.

For the agreements we reviewed, we found that implementation is generally not well monitored.[2] While six of the eight agreements we reviewed specify how implementation is to be measured and require parties to provide relevant information periodically, not all parties report complete and timely information to the secretariats. As a result, the secretariats and the parties are limited in their ability to know about compliance problems or to take action to enhance implementation. For example, according to a report prepared for the CITES secretariat, late and incomplete reporting has limited the secretariat's ability to identify instances of illegal activity and notify parties of those instances, as well as to determine which species have been threatened by excessive harvesting and trading.

We found that both developed and developing countries have reporting problems. Among developed countries, these include difficulties in assembling information from disparate sources, a low priority given to reporting, and insufficient personnel devoted to reporting. Among developing countries, poor reporting is more widespread and is part of a larger and more serious problem related to their financial and technical capability to implement the agreements. Developing countries frequently lack sufficient financial and technical resources with which to draft adequate implementing legislation, set up an effective administrative system, hire and train enforcement personnel, or purchase pollution abatement equipment. For example, according to a State Department official, some developing countries have "one-person" wildlife departments to implement CITES as well as perform other tasks. Some countries may even lack sufficient resources to print the certificates needed to document and control trade in endangered species.

Despite these reporting problems, secretariat officials told us they believe they are aware of any important implementation problems. However, secretariats generally do not have the authority or resources needed to verify reported information or to independently monitor and assess parties' compliance.

In addition to our report, other sources have identified reporting problems with international environmental agreements. In a survey of 100

[2]Our review focused on eight agreements: the Montreal Protocol (stratospheric ozone depletion), the Nitrogen Oxides (NOx) Protocol (acid rain, air pollution), the Basel Convention (the generation, transport, and disposal of hazardous waste), the London Dumping Convention (marine pollution), the International Convention for the Prevention of Pollution From Ships (MARPOL), the Convention on International Trade in Endangered Species (CITES), the International Whaling Convention, and the International Tropical Timber Agreement.

environmental agreements and instruments, the UNCED Secretary-General found that problems with information may stem from the environmental agreements themselves.[3] The UNCED survey found that some agreements contain no reporting duties, others call for reporting but have not developed reporting procedures, and others ask for information that does not allow implementation to be measured.

Recognizing the seriousness of environmental problems, a number of international experts have proposed measures to strengthen international oversight, as well as parties' capability to comply with environmental agreements; our report highlighted a number of these measures. For example, organizations that oversee international agreements on labor, human rights, and trade offer possible models for monitoring compliance through visits to countries and on-site inspections, public hearings, and other verification and assessment procedures. In addition, some observers suggest that nongovernmental organizations should be given a more formal role in monitoring or assessing the implementation of international environmental agreements.

Improving the Information Available Can Further Implementation

Environmental agreements could be strengthened if the quantity and quality of information on parties' efforts to implement them were improved. Recognizing the importance of information as the basis for applying pressure on reluctant governments to implement the agreements, symposium panelists emphasized that information on implementation can play equally important roles in building greater public support for the agreements and in guiding multilateral aid and technical assistance to countries that now lack the capacity to implement the agreements.

Availability of and Public Access to Information Can Enhance Support for Implementation

Symposium panelists agreed that providing better information on implementation, as well as greater public access to it, is important in creating what one termed a "national consensus" to implement environmental agreements. Referring to the increased availability of information on implementation as "transparency," panelists believed that it helps create this consensus because it both allows for and leads to greater public participation—and, therefore, influence—in governments' decision-making on international environmental matters.

[3]Report of the Secretary-General of the Conference, Survey of Existing Agreements and Instruments and Its Follow-up, (A/CONF.151/PC/103, Jan. 20, 1992).

Panelists gave examples of how transparency creates an incentive for action. A panelist experienced in European environmental policy recounted that environmental directives within the European Community were often poorly implemented by member nations until compliance information started to become public. The exposure to public scrutiny and criticism led many member nations to change national policies to improve their environmental performance, he said.

Another panelist pointed to a domestic example—the response of U.S. industries to the 1986 Emergency Planning and Community Right-to-Know Act, which requires industries to report their toxic emissions so that the information can be publicly available in EPA's Toxic Release Inventory. Although the emissions were not prohibited, lists of "dirty dozen" facilities produced from the inventory by nongovernmental organizations received wide coverage by the media and created an incentive for industries to reduce emissions. In a report to the Congress evaluating EPA's inventory, we found that the public availability of data prompted some large manufacturers to set goals for reducing emissions.[4] On the basis of our nationwide survey of industrial facilities that submitted reports to the inventory, we estimated that as a consequence of the inventory program, over half of all reporting facilities made one or more operational changes designed to reduce toxic emissions.

One of the panelists imparted what he considered a broader lesson, asserting that historically, public opinion, rather than governmental initiative, has been the driving force to protect the environment. He went on to observe a link between democratic governments and environmental protection, stemming largely from citizens' access to information and influence in the political process. He cited the substantial environmental problems in the former Soviet Union as evidence of how authoritarian regimes, indifferent to the opinions of their citizens, also neglect the environment. This panelist expressed hope that the end of the Cold War and the growth of democracy around the world would lead to greater actions by governments on behalf of the environment.

Panelists also stressed the unique role that nongovernmental organizations can play as the instruments through which the peer and public pressure for compliance are applied. Panelists explained that because nongovernmental organizations do not represent a government, their criticisms of implementation efforts are less likely to be perceived as

[4]Toxic Chemicals: EPA's Toxic Release Inventory Is Useful but Can Be Improved (GAO/RCED-91-121, June 27, 1991).

politically motivated or linked to other issues, as could be the case when one government criticizes another. As one panelist observed, since governments are frequently reluctant to criticize one another on an issue, given their fears of harming relationships in other policy areas, nongovernmental organizations may air complaints in a manner that may "make something actually happen." One panelist mentioned that the International Labor Organization (ILO) allows nongovernmental organizations to review and comment on reports countries submit on their implementation of international labor agreements governed by the ILO. As we explained in our previous report on environmental agreements, parties may be requested to testify before the ILO's Conference Committee because of compliance problems raised in this review. If the ILO requests that a country institute a change as a result of this process, the organization offers to provide technical assistance in order to enable the country to comply.

Information Can Be Used to Target Assistance

Aside from having the role of generating peer and public pressure—both among and within nations—information on implementation can, according to symposium panelists, also help to build a nation's capability to implement agreements. In contrast to implementing international agreements in other areas, such as human rights, implementing an environmental agreement depends as much on the capability of a party as on its willingness. If a party reports problems in complying, it can be provided with financial aid and technical assistance; in this way, reporting can strengthen the party's ability to implement the agreement. Tying reporting to financial and technical assistance creates an incentive for parties to report, increasing the amount of information available and furthering its function of prompting improved environmental performance.

Despite emphasizing the benefits of information in furthering implementation, panelists recognized that the prospect of public disclosure of this information may make some nations reluctant to report. One panelist pointed out that because compliance monitoring is often approached and perceived as a punitive investigatory exercise—indeed, another panelist explained that the word "monitoring" roughly translates to mean "surveillance" in some languages—countries, particularly developing countries, are frequently reluctant to report on their implementation efforts. Another panelist acknowledged that this reluctance may prevent countries from accepting stronger reporting mechanisms in future environmental agreements.

However, two panelists stated that this reluctance could be overcome if parties emphasized the positive role that information on implementation can play, particularly as a means to target assistance to those countries that lack the capacity to implement agreements. These panelists believed this role for information should be emphasized because many parties simply lack the resources for implementation and thus should not be blamed for inaction. One panelist pointed out that reporting should be seen by, and offered to, developing countries as an opportunity to enhance their claim for resources needed to implement agreements. Another panelist stressed that information on implementation should not be seen as an effort to "mobilize shame," but rather as an attempt to "mobilize aid for compliance." As a result, he added, compliance monitoring becomes far from a punitive act, but rather an aid-enhancing act.

Incentives Can Enhance Participation and Implementation

The prospects for nations' implementation of environmental agreements can be increased by making greater use of incentives—such as those contained in the Montreal Protocol and other agreements—that encourage participation and compliance with agreements. According to panelists, incentives that encourage participation in the negotiation and governance of environmental agreements, such as travel assistance to developing countries, can help build a willingness to implement the agreements by providing opportunities for countries to become better educated about the nature and seriousness of international environmental problems. Incentives that encourage compliance, such as financial and technical assistance, help address the lack of resources that frequently prevents developing countries from adequately implementing environmental agreements.

Limited Resources Prevent Developing Countries From Participating in Negotiation and Governance of Agreements

Our report highlighted the problems posed by developing countries' lack of technical and financial resources to implement agreements. Symposium panelists and the UNCED Secretary-General's 1992 survey of agreements pointed out that a lack of resources also precludes developing countries from simply sending negotiators to preparatory sessions, preventing these countries from participating in the negotiation and governance of environmental agreements.

According to the UNCED Secretary-General's survey, developing countries' participation in environmental agreements is limited. In examining membership in 37 environmental agreements, the survey found that those countries participating in more than 25 are nearly all developed countries,

whereas those countries participating in 10 or fewer agreements are virtually all developing countries. The survey also showed that developing countries take part less frequently in the governance of agreements. For example, according to the survey, the 1991 Geneva conference of the parties to the Migratory Species Convention, which then had a fairly balanced membership of 18 developed and 19 developing countries, was officially attended by delegations from 14 developed and only 6 developing countries. Developing countries' limited participation, the UNCED Secretary-General concluded, stems from a lack of finances and staff.

One panelist discussed the effect that this lack of participation has on developing nations' implementation of an environmental agreement, stating that participation in an agreement is a learning process as well as a negotiation process. The panelist said that including developing countries in negotiation and governance is important for imparting a sense of responsibility and a stake in the outcome of the agreement. This panelist added that parties who do not understand the nature and danger of the environmental problem being addressed or who feel powerless to effectively participate in the negotiation and governance of the agreement are less likely to implement it. Participation, along with the understanding it brings, is, according to the panelist, important in enabling countries to convince their own citizens of the need to implement the agreement. He observed, "Without a national consensus at home, a global commitment is not very valuable."

Assistance Can Be Provided Through Several Means

As highlighted by symposium panelists, the UNCED Secretariat-General's survey, and our report, several environmental agreements contain provisions that provide incentives for nations to participate in and implement environmental agreements and could serve as models to be used to strengthen other environmental agreements. In addition, panelists highlighted the unique roles nongovernmental organizations and institutions such as the World Bank can play in strengthening the capacity of developing countries to implement environmental agreements.

Assistance Through the Agreements Themselves

According to the UNCED survey, a number of environmental agreements provide funding for developing countries' participation. For example, the 1979 Migratory Species Convention has a trust fund dedicated for the participation of developing countries at convention meetings. Also, under the 1971 Ramsar Convention for the conservation of wetlands, budgets specifically dedicate funds for this purpose. Finally, the 1987 Montreal Protocol, as well, has established a trust fund for this purpose.

Panelists also referred to other means by which agreements can enhance developing countries' capability to implement them. Many of these means are contained in the Montreal Protocol. For example, article 5 of the Montreal Protocol, entitled "Special Situation of Developing Countries," gives qualifying developing countries an additional 10 years to phase out their consumption of ozone-depleting substances. A panelist stated that allowing flexible, more realistic implementation schedules for developing countries helps to encourage developing countries both to become parties to agreements and to implement them because it provides these countries time to build the needed capability.

Panelists also pointed to sections of the Montreal Protocol dealing with financial and technical assistance and the transfer of technology as models for increasing developing countries' participation in and implementation of agreements. Article 10 authorizes a $240 million multilateral fund, financed by contributions from the industrialized nations that are parties to the agreement, to support developing countries' efforts to phase out ozone-depleting substances. Article 10A directs parties to ensure the transfer, to the extent practicable and as expeditiously as possible, of "environmentally safe substitutes" and related technologies to developing countries that are parties.

Assistance From International Institutions

Panelists also highlighted the role that international institutions can play in improving the ability of developing countries to implement environmental agreements. As noted in our January 1992 report, UNEP, for one, has a Clearinghouse Unit that allows donors to earmark funds to assist specific countries or to go to certain projects. UNEP itself provides assistance to developing countries in creating environmental legislation and administrative systems.

UNEP, the United Nations Development Program, and the World Bank have recently established the Global Environment Facility (GEF), which provides grants and low-interest loans to developing countries to assist them in carrying out programs to relieve pressures on global ecosystems. The GEF began operating in 1991 as a 3-year pilot project with initial commitments of about $1.5 billion. Funds are designated for projects intended to protect the ozone layer, reduce marine pollution, preserve biological diversity, and reduce and limit emissions of greenhouse gases, with some priority given to projects that further the goals of international agreements.

Assistance From Nongovernmental Organizations

Panelists supported the efforts of nongovernmental organizations to directly assist developing countries in the negotiation, governance, and implementation of environmental agreements. One panelist cited the assistance provided by such organizations to a group of 36 island countries, the Association of Small Island States, in the recent negotiations for the climate change convention. An official of one nongovernmental organization served as a technical adviser to the association and attended the negotiations on its behalf. In addition, the association sought and received scientific information and assistance from scientists of nongovernmental organizations for use in the negotiations.

In closing, one of the panelists stressed that assisting developing countries in implementing agreements should not be viewed as altruistic on the part of developed countries. Providing an analogy, he described the technical assistance given to countries through the United Nations International Civil Aviation Organization. This organization meets requests from developing countries for help in establishing or improving air transport systems and training aviation personnel. The panelist pointed out that this assistance is not granted to developing countries for the purpose of helping them improve the condition of their own airports, but rather to ensure the safety and security of the entire global civil air transport system. Similarly, he argued, bringing developing countries up to the environmental standards of developed nations is the only way of successfully protecting the global environment and therefore "is in our own interest."

Conclusions

Opportunities exist to strengthen international environmental agreements by improving both the capability and willingness of nations to implement them. Developing countries, in particular, lack resources for participating in all aspects of the agreements—negotiation and governance as well as implementation. Assistance is now provided, to some extent, by international institutions and nongovernmental organizations, but could also be provided by parties to the agreements, as is now the case under the Montreal Protocol.

Information on implementation can play an equally valuable role in strengthening agreements. While some countries may be reluctant to provide information, and hence may be discouraged from entering into agreements with monitoring provisions, ultimately public disclosure of information on implementation may serve to mobilize public support for the goals of the agreements and lead parties to make a greater

commitment to implementation. Moreover, countries may come to recognize that information can be used for positive ends, rather than for blame or shame and that disclosure can offer them an opportunity to improve their capability to live up to their obligations.

Matters for Congressional Consideration

As a result of agreements reached at UNCED, as well as those that could be developed as nations continue to address international environmental problems, the Congress will have a number of opportunities to consider means to strengthen both existing and future environmental agreements. At these points, the Congress could establish as a policy goal that agreements provide for more comprehensive information about nations' implementation and for greater public access to this information:

- As agreements are presented for ratification, the Senate could make clear its interest in developing monitoring mechanisms to supplement countries' reports on implementation. These mechanisms could include (1) independent fact-finding by the secretariats, hearings, or other information-gathering activities and (2) opportunities for nongovernmental organizations to present and review information.
- In providing authorization or appropriations for international institutions, such as UNEP, the Congress could encourage these institutions or the secretariats they support to develop mechanisms for monitoring the implementation of environmental agreements.

The Congress could also pursue a goal of increasing developing countries' participation in agreements, as well as these countries' capacity to implement agreements. In addition to providing assistance under bilateral aid programs, the Congress could encourage international institutions to provide financial and technical assistance to developing countries, both for participation in negotiations leading up to the agreements and their subsequent governance and for implementation and the reporting of information once the agreements have been adopted.

Agency Comments

We did not receive written agency comments on this report. However, representatives of both EPA and the Department of State participated as panelists in the symposium, and, thus, to some extent, their views are reflected in this report. We also circulated a draft of this report to all panelists and incorporated their comments.

Scope and Methodology

To help us in our review, we invited a group of experts on international environmental agreements to participate in a symposium, held on December 4, 1991, in Washington, D.C. Appendix I lists and provides some background on the symposium panelists. With our earlier report used as background, discussion centered on (1) means to strengthen the monitoring of agreements and (2) options for enhancing the capacity and willingness of countries to implement agreements. In addition to relying on our previous report, we drew on recent analyses by the UNCED Secretary-General. Susan R. Fletcher, CRS' Senior International Environmental Policy Analyst, served as a moderator at the symposium and contributed to this report. We conducted our review between August 1991 and July 1992.

This work was performed under the direction of Richard L. Hembra, Director, Environmental Protection Issues, who can be reached on (202) 275-6111 if you or your staff have any questions. Major contributors to this report are listed in appendix II.

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Assistant Comptroller General

Symposium Panelists

Elizabeth Barratt-Brown is an attorney in the International Program of the Natural Resources Defense Council. Before joining the council, Ms. Barratt-Brown served as a legislative assistant to Senator Frank R. Lautenberg and as the communications director in a congressional campaign. She also served as an intern for the Environmental Law Unit of the United Nations Environment Program (UNEP) in Nairobi. Her article for the Yale Journal of International Law, "Building a Monitoring and Compliance Regime Under the Montreal Protocol," has been read widely for its analysis.

Noel J. Brown is the Special Representative of the Executive Director and North American Regional Director of UNEP. Dr. Brown has represented UNEP at several United Nations conferences, including those on Habitat and Human Settlements, Science and Technology, and the Law of the Sea, as well at the Conference of Plenipotentiaries on the Protocol on Chlorofluorocarbons to the Vienna Convention for the Protection of the Ozone Layer. His previous service at the United Nations was as Political Affairs Officer in the Department of Political and Security Council Affairs. A citizen of Jamaica, Dr. Brown has lectured extensively in the United States and the Caribbean and has a number of publications to his credit.

Jeffrey D. Kovar is an attorney-adviser in the Office of the Legal Adviser of the U.S. Department of State. In this capacity, he has worked with the Bureaus of Oceans, International Environmental, and Scientific Affairs; Human Rights and Refugees; and International Claims and Investment Disputes. Mr. Kovar has also been an adjunct professor of law at Georgetown University Law Center and a staff attorney on the President's Special Review Board (Tower Commission).

William A. Nitze is President of Alliance to Save Energy, a nonprofit coalition of business, government, environmental groups, and consumers that is dedicated to increasing the efficiency of energy use. From 1987 to 1990, Mr. Nitze served as Deputy Assistant Secretary of State for Environment, Health, and Natural Resources, with responsibility for formulating policy and conducting international negotiations on, among other things, global climate change, the protection of the ozone layer, and transboundary shipments of hazardous substances. Previously, he worked for Mobil Oil Corporation, as a counsel in the International Division, as the director of Mobil's Japanese affiliate, and as an assistant general counsel in the company's Exploration and Producing Division.

Ralph Osterwoldt is Counsel in the Environmental Law Unit of the Legal Department of the World Bank. A Canadian citizen, Mr. Osterwoldt was previously a legal counsel in the Department of Environment of Canada, specializing in international instruments having to do with climate change and forestry for the United Nations Conference on Environment and Development (UNCED), and in domestic environmental regulations concerning fisheries, waste shipments, and other issues. As Foreign Service Officer in the Department of External Affairs, he worked on the Hague Environmental Summit, the Finnish Initiative on the Arctic Environment, and projects concerning sustainable development in Central America and the Caribbean. Prior to his Canadian government service, Mr. Osterwoldt served as an officer with UNEP's Environmental Law Unit, in charge of the Secretariat for the Convention on Migratory Species.

Peter H. Sand, an international lawyer, served as Principal Program Officer for the UNCED Secretary-General. In preparation for UNCED, Mr. Sand supervised the preparation of a report on the status of more than 100 multilateral environmental agreements. Since joining the United Nations system in 1970, he has held senior staff positions with the United Nations Food and Agriculture Organization, the International Union for Conservation of Nature and Natural Resources, UNEP, and the United Nations Economic Commission for Europe. Mr. Sand has been involved in the drafting and administration of several international environmental agreements and has served as the Secretary-General of the Convention on International Trade in Endangered Species.

Peter S. Thacher is Senior Counselor at the World Resources Institute, a nonprofit policy research organization in Washington, D.C., and Senior Adviser to the Secretary-General of UNCED. In 1983, he retired from the United Nations as Deputy Executive Director of UNEP at its headquarters in Nairobi, having previously been in charge of UNEP's European Office. Mr. Thacher has also served as an adviser to a variety of groups, including the World Health Organization. His recent work with the National Aeronautics and Space Administration and UNEP led to the establishment of GRID—the Global Resources Information Database—now operational in Geneva, Nairobi, and Bangkok.

Konrad von Moltke is a professor of environmental studies at Dartmouth College and Senior Fellow with the World Wildlife Fund in Washington, D.C. Prominent in international environmental affairs for more than 12 years, Dr. von Moltke was the founding director of the Institute for European Environmental Policy, which has offices in Bonn, Paris, London,

and Brussels. He has consulted for companies and worked for government agencies throughout Europe and has testified on environmental policy issues before parliamentary bodies in Belgium, France, the Netherlands, West Germany, Italy, and the United Kingdom. Dr. von Moltke is the editor of International Environmental Affairs, a journal for research and policy.

Robert Ward is an attorney-adviser with the International Activities Division of the Office of General Counsel, U.S. Environmental Protection Agency (EPA). He specializes in multilateral and regional approaches for protecting forests and biological diversity and for preventing marine pollution. He has particular expertise in the environmental problems of developing nations. Much of his recent work at EPA was focused on preparations for UNCED. Prior to working at EPA, Mr. Ward, as the recipient of a Fulbright Fellowship, spent a year working with the Indonesian Ministry for the Environment.

Edith Brown Weiss, formerly the Associate General Counsel for International Activities for EPA, is a professor of law at Georgetown University Law Center. Dr. Weiss has been a member of numerous scientific and legal advisory committees on international environmental matters, and she currently serves as vice-chair of the American Bar Association's Committee on International Environmental Law and as a member of the Board of Editors of the American Journal of International Law, as well as other editorial advisory boards. She is the author of numerous scholarly articles and books, including In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity, which was recognized by the American Society of International Law for its outstanding contribution to the development of international law.

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