

THE
INTERNATIONAL
POLITICS OF THE
ENVIRONMENT

Actors, Interests, and Institutions

Edited by Andrew Hurrell and Benedict Kingsbury

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ABBREVIATIONS

<i>AJIL</i>	<i>American Journal of International Law</i>
CFC(s)	chlorofluorocarbon(s)
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CLC	IMO Convention on Civil Liability for Oil Pollution Damage 1969
CO ₂	carbon dioxide
EC	European Community
ECE	United Nations Economic Commission for Europe
ECOSOC	United Nations Economic and Social Council
EEC	European Economic Community
EEZ	Exclusive Economic Zone
EFZ	Exclusive Fishing Zone
FAO	Food and Agricultural Organization
FOE	Friends of the Earth
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GHG	greenhouse gases
GNP	Gross National Product
ICJ	International Court of Justice
ICRW	International Convention for the Regulation of Whaling
ICSU	International Council of Scientific Unions
<i>ILM</i>	<i>International Legal Materials</i>
IMF	International Monetary Fund
IMO	International Maritime Organization

x Abbreviations

IPCC	Intergovernmental Panel on Climate Change
ITTO	International Tropical Timber Organization
IUCN	International Union for the Conservation of Nature and Natural Resources
MARPOL	Convention for the Prevention of Pollution from Ships 1973 (amended 1978)
NGO	Non-Governmental Organization
OAS	Organization of American States
OAU	Organization of African Unity
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PCB(s)	polychlorinatedbiphenyls
PCIJ	Permanent Court of International Justice (predecessor to the ICJ)
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
TFAP	Tropical Forestry Action Plan
UN	United Nations
UNCED	United Nations Conference on Environment and Development, Brazil, 1992
UNCHE	United Nations Conference on the Human Environment, Stockholm, 1972
UNCLOS	United Nations Convention on the Law of the Sea, 1982
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WCED	World Commission on Environment and Development (the Brundtland Commission)
WMO	World Meteorological Organization
WRI	World Resources Institute, Washington, DC
WWF	World Wide Fund for Nature (formerly World Wildlife Fund)

SOME MAJOR MULTILATERAL ENVIRONMENTAL TREATIES

Transboundary Atmospheric Pollution

Geneva Convention on Long-Range Transboundary Air Pollution 1979, *ILM* 24 (1985), 484.

Protocol for Long-Term Financing of Monitoring 1984, *ILM* 24 (1985), 484.

Protocol on the Reduction of Sulphur Emissions or Their Transboundary Fluxes by at Least 30 Per Cent 1985, *ILM* 27 (1988), 698.

Protocol Concerning the Control of Emissions of Nitrogen Oxides (1 November 1988), *ILM* 28 (1989), 212.

Protocol on the Reduction of Volatile Organic Compounds 1991.

Stratospheric Ozone Layer

Vienna Convention for the Protection of the Ozone Layer 1985, *ILM* 26 (1987), 1516.

Montreal Protocol on Substances that Deplete the Ozone Layer 1987, *ILM* 26 (1987), 1541. Amended and Adjusted at London 1990, text in Carter and Trimble (eds.), *International Law: Selected Documents* (Boston: Little, Brown, 1991), 731.

Transboundary Movement of Hazardous Wastes

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1989, *ILM* 28 (1989), 657.

Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, concluded under the auspices of the OAU, 29 January 1991, *ILM* 30 (1991), 773.

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Transboundary Standing and Environmental Impact Assessment

Nordic Environmental Protection Convention 1974, *ILM* 13 (1974), 511.

Espoo Convention on Environmental Impact Assessment in a Transboundary Context 1991, *ILM* 30 (1991), 800.

Nuclear Tests and Accidents

Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water 1963, *UNTS* 480, p. 43.

Paris Convention on Third Party Liability in the Field of Nuclear Energy 1960, *AJIL* 55 (1961), 1082, with supplementary Convention 1963, *ILM* 2 (1963), 685.

Vienna Convention on Civil Liability for Nuclear Damage 1963. Convention on Early Notification of a Nuclear Accident 1986, *ILM* 25 (1986), 1370.

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency 1986, *ILM* 25 (1986), 1377.

Antarctica

Antarctic Treaty 1959, *UNTS* 402, p. 71.

Protocol on Environmental Protection 1991, *ILM* 30 (1991), 1455. Convention for the Conservation of Antarctic Seals 1972, *ILM* 11 (1972), 251.

Convention on the Conservation of Antarctic Marine Living Resources 1980 (CCAMLR), *ILM* 19 (1980), 841.

Wellington Convention on the Regulation of Antarctic Mineral Resource Activities 1988 (CRAMRA), *ILM* 27 (1988), 868.

Space Objects

Convention on International Liability for Damage Caused by Objects Launched into Outer Space 1972, *AJIL* 66 (1972), 702.

Outer Space

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 1967, *UNTS* 610, p. 205.

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Marine Pollution: Global

International Convention on Civil Liability for Oil Pollution Damage 1969, *ILM* 9 (1970), 45.

Brussels Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material 1971, *UKTS, MISC* 39 (1972), Cmnd. 5094.

International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971, *AJIL* 66 (1972), 712.

London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Dumping Convention), *ILM* 11 (1972), 1294.

Convention for the Prevention of Pollution of Ships 1973 (MARPOL), *ILM* 12 (1973), 1319, Amended by Protocol 1978, *ILM* 17 (1978), 526.

London Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources 1977, *ILM* 16 (1977), 1450.

UN Convention on the Law of the Sea 1982, *ILM* 21 (1982), 1261.

Marine Pollution: Regional

Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft 1972, *ILM* 11 (1972), 262.

Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area 1974, *ILM* 13 (1974), 546.

Paris Convention for the Prevention of Marine Pollution from Land-Based Sources 1974, *ILM* 13 (1974), 352.

Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution 1976, with Protocols, *ILM* 15 (1976), 290.

Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution 1978, with Protocol, *ILM* 17 (1978), 511.

Lima Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific 1981, UN doc UNEP-CPPS/IG. 32/4 (1981).

Jiddah Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment 1982, with Protocol, *Envt'l Pol. & Law* 9 (1982), 56.

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Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region 1983, with Protocol, *ILM* 22 (1983), 227.

Nairobi Convention for the Protection, Management, and Development of the Marine and Coastal Environment of the Eastern African Region 1985, with Protocols, *Int'l Env I* 385, 46.

Noumea Convention for the Protection of the Natural Resources and Environment of the South Pacific Region 1986, with Protocols, *ILM* 26 (1987), 38.

Wildlife

International Convention for the Regulation of Whaling 1946, UNTS 161, p. 72.

Convention on International Trade in Endangered Species of Wild Fauna and Flora 1973, *ILM* 12 (1973), 1085.

Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979, *ILM* 19 (1980), 15.

Habitat

Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971, *ILM* 11 (1972), 963.

Convention for the Protection of the World Cultural and Natural Heritage 1972, *ILM* 11 (1972), 1358.

1

The International Politics of the Environment: An Introduction

Andrew Hurrell and Benedict Kingsbury

IN addressing the international politics of the environment this book is concerned with the processes by which inter-state agreements on the environment are negotiated; with the rules and regimes established to facilitate environmental co-operation; with the international institutions that have been, or need to be, created to implement those rules; and with the conflicting political forces on whose resolution any successful regional or global environmental initiatives must depend. The global environmental issues discussed in this volume include climate change (chapters by Richardson, Beckerman, Cooper, Shue, Susskind and Ozawa, and Maull), ozone depletion (Bramble and Porter, and Maull), marine dumping (Stairs and Taylor), deforestation (Hurrell, Myers, and Bramble and Porter), and biodiversity (Myers). The objective is not to provide detailed scientific treatment of the nature of the major environmental challenges facing the world, but rather to explore the international political forces that work to complicate the negotiation and implementation of rational environmental policies between states, to analyse the strengths and weaknesses of various institutional mechanisms by which states have sought to co-operate in managing environmental problems, and to assess their relevance for the future. Underlying this analysis is a central question: Can a fragmented and often highly conflictual political system made up of over 170 sovereign states and numerous other actors achieve the high (and historically unprecedented) levels of co-operation and policy co-ordination needed to manage environmental problems on a global scale?

The international dimensions of environmental problems have

long been apparent, whether cross-border industrial pollution, the degradation of shared rivers, or the pollution of adjacent seas. Yet the scale and extent of these problems have increased dramatically as a result of the triple processes of population growth, rapid industrialization, and increased fossil fuel consumption. As one recent report points out:

Since 1900, the world's population has multiplied more than three times. Its economy has grown twentyfold. The consumption of fossil fuels has grown by a factor of 30, and industrial production by a factor of 50. Most of that growth, about four-fifths of it, occurred since 1950. Much of it is unsustainable.¹

The tremendous increase in the scale of human impact on the earth wrought by these developments, together with our increased, although still highly imperfect, understanding of ecological processes, means that the environment can no longer be viewed as a relatively stable background factor. Rather the interaction between continued economic development and the complex and often fragile ecosystems on which that development depends has become a major international political issue.

Not only has the number and scope of transborder environmental problems increased, but a new category of global environmental issues has emerged; it is this global character that is the most distinctive feature of the present era. First, and most obviously, humanity is now faced by a range of environmental problems that are global in the strong sense that they affect everyone and can only be effectively managed on the basis of co-operation between all, or at least a very high percentage, of the states of the world: controlling climate change and the emission of greenhouse gases, the protection of the ozone layer, safeguarding biodiversity, protecting special regions such as Antarctica or the Amazon, the management of the sea-bed, and the protection of the high seas are among the principal examples.

Second, the increasing scale of many originally regional or local

¹ Jim MacNeill, Peter Winsemius, and Taizo Yakushiji, *Beyond Interdependence: The Meshing of the World's Economy and the Earth's Ecology* (Oxford: Oxford UP, 1991), 3. In 1990 the UN Population Fund estimated that the then population of 5.24 billion would grow to over 6.2 billion by the year 2000, with 94% of the projected increase to take place in developing countries. The estimate of 6.2 billion was 124 million higher than the 1984 projection. See UN doc. A/CONF.151/PC/38 (26 Mar. 1991), 5.

environmental problems, such as extensive urban degradation, deforestation, desertification, salination, denudation, or water or fuel-wood scarcity, now threaten broader international repercussions: by undermining the economic base and social fabric of weak and poor states, by generating or exacerbating intra- or inter-state tensions and conflicts, and by stimulating increased flows of refugees. Environmental degradation in diverse parts of the developing or indeed the industrialized world can in this way come to affect the political and security interests of the developed countries.

The third, and in many ways most important, aspect of increased globalization derives from the complex but close relationship between the generation of environmental problems and the workings of the now effectively globalized world economy. On the one hand, there is the range of environmental problems caused by the affluence of the industrialized countries; by the extent to which this affluence has been built upon high and unsustainable levels of energy consumption and natural resource depletion; and by the 'ecological shadow' cast by these economies across the economic system (a theme addressed by Hanns Maull in his chapter below). On the other, there is the widely recognized link between environmental degradation, population pressure, and poverty, given prominence in the Brundtland Report and at the 1992 United Nations Conference on Environment and Development (UNCED) in Brazil and highlighted below in Peter Thacher's examination of the present and future roles of the UN system and in Norman Myers's discussion of the 'shifted cultivator'. The environmental problems created by both affluence and poverty have focused attention on the need to develop new understandings of sustainable development and new mechanisms for implementing the shift towards sustainability. Sustainable development has become a global issue both because of the high levels of economic interdependence that exist within many parts of the global economy and because it raises fundamental questions concerning the distribution of wealth, power, and resources between North and South.

As several of the chapters in this volume demonstrate, it is no longer possible to treat ecology and international political economy as separate spheres. The institutions that matter most

are not specifically 'environmental', but rather are the core institutions that govern (or at least seek to govern) the workings of the world economy: such institutions as the World Bank, the IMF, the GATT, the Group of Seven, and to some extent the OECD. A major contemporary focus is the integration of environmental concerns into the sphere of economic planning and policy-making, rather than the development of an entirely separate and thus inevitably somewhat peripheral sphere—this point is developed in Kenneth Piddington's chapter on the World Bank.

Why should the international political aspects of environmental issues be a distinct object of study? Why, given the seemingly obvious incentives to co-operate, should inter-state co-operation be viewed as problematic? The most basic answer lies in the striking dichotomy between the seamless web of ecological interdependence on the one hand and the fragmentation of the international political system on the other. A single, complex and highly integrated ecosystem has to be managed within the constraints of a political system made up of over 170 states, each claiming sovereign authority within its territory. It is, moreover, a political system which has historically been prone to violent conflict and in which co-operation has been difficult to achieve.

For many (including the self-styled 'Realist School' of international relations), the absence of any central authority—the existence of anarchy between states—is the defining principle of international relations and the source of inevitable insecurity and conflict. The existence of anarchy fuels the inescapable logic of the security dilemma: the foreign policies of states are dominated by the need to survive and to accumulate power in order to guarantee their survival. This creates a vicious spiral of insecurity and mistrust that makes sustained co-operation all but impossible. As Robert Jervis puts it:

Because there are no institutions or authorities that can make and enforce international laws, the policies of co-operation that will bring mutual rewards if others co-operate may bring disaster if they do not. Because states are aware of this, anarchy encourages behavior that leaves all concerned worse off than they could be.²

² Robert Jervis, 'Cooperation under the Security Dilemma', *World Politics*, 30 (1978), 167.

On this view, the prospects for effective global environmental management are modest indeed. Anarchy and conflict are the rule, order and co-operation the exception.

Even if this image of a Hobbesian world is rejected as overdrawn, and it is recognized that a great deal of co-operation does in fact take place, the difficulties of inter-state co-operation must still constitute the starting-point for any study of the prospects for global environmental management. There are many collective action problems in which states would clearly stand to gain from co-operation but are unable to do so—situations in which (in the language of game theory) instrumentally rational actors have an incentive not to co-operate, even though mutual co-operation would be the collectively optimal outcome. Why is this? Most centrally because of the weakness or absence of the institutions required to stabilize expectations, to prevent defections and free-riding, and to encourage and channel domestic pressures for international co-operation. Although international co-operation is required both to manage global environmental problems and to deal with domestic environmental problems in ways that do not place individual states at a political or competitive disadvantage, states will not participate in such co-operative efforts unless there is some guarantee that other states will do likewise. This assurance problem is exacerbated by the pressures on states and state representatives to place a high priority on their immediate short-term interests and on relative gains and losses; by the large number of deep-rooted historical conflicts that exist between states; and by the cultural, political, and economic heterogeneity of the international system. Moreover, although interdependence both generates collective action problems and creates incentives to co-operate, it also creates new elements of instability (because of the increased susceptibility of domestic politics to external shocks), leads to new sources of conflict (because the costs and benefits of managing interdependence have to be distributed between states), and opens up new sources of power and leverage (because it exposes states to external vulnerability, is rarely symmetrical, and introduces new connections between international and domestic politics).

Managing the environment also demands high levels of co-operation and policy co-ordination. The forms of co-operation that emerged historically between states were largely concerned

with elaborating minimum rules of coexistence built around the mutual recognition of sovereignty and the corollary norm of non-intervention. Co-operation was built around the rights of states to independence and autonomy and the creation of certain minimalist understandings designed to limit the degree of conflict that naturally occurred within such a pluralist and fragmented system. The classical state system was therefore a 'practical association' which did not embody any overarching set of common purposes or any common vision of the good life.³

This minimalist picture of circumscribed international co-operation has of course been recast in the twentieth century, through the extension of economic interdependence, the growth of international institutions, and the emergence in international law of customary and treaty norms establishing rights and duties for individuals.⁴ Yet despite the changes that have occurred, the structure of both the international political and legal systems continues to rest heavily upon the independence and autonomy of separate sovereign states and the pluralism which this entails. Collective environmental management poses a severe, and therefore politically sensitive, challenge because it involves the creation of rules and institutions that embody notions of shared responsibilities and shared duties, that impinge very heavily on the domestic structures and organization of states, that invest individuals and groups within states with rights and duties, and that seek to embody some notion of a common good for the planet as a whole.

The clash between the character of the international system and the necessities of rational environmental management has often led to acute scepticism about the suitability of the state system. One such sceptical position was summarized by Richard Falk, writing at the time of the first wave of global environmental concern in the early 1970s:

A world of sovereign states is unable to cope with endangered-planet problems. Each government is mainly concerned with the pursuit of

³ Cf. generally Terry Nardin, *Law, Morality, and the Relations of States* (Princeton: Princeton UP, 1983).

⁴ See Wolfgang Friedmann's discussion of the evolution from an international law of co-existence to an international law of co-operation, in *The Changing Structure of International Law* (New York: Columbia UP, 1964); and e.g. Michel Virally, 'Panorama du droit international contemporain', *Recueil des Cours de l'Académie de Droit International*, 183 (1983), 9-382.

national goals. These goals are defined in relation to economic growth, political stability, and international prestige. The political logic of nationalism generates a system of international relations that is dominated by conflict and competition. Such a system exhibits only a modest capacity for international co-operation and co-ordination. The distribution of power and authority, as well as the organization of human effort, is overwhelmingly guided by the selfish drives of nations.⁵

For some the only logical answer to this conundrum lay in curtailing the sovereign powers of states and in moving towards a greater degree of supranational authority: 'Thus the already strong rationale for a world government with enough coercive power over fractious nation states to achieve what reasonable men would regard as the planetary common interest has become overwhelming.'⁶ However, the prospects for extensive supranationalism and world government are inevitably remote, and are open (at least with regard to the short or medium term) to several objections that are well known but deserve brief re-statement.⁷ First, the nation state remains extremely resilient as a focus for human loyalties and as a structure for the exercise of political power. There is little or no consensus amongst the leaders of states or amongst populations that a move towards supranationalism is desirable. This is particularly true of the developing world. For many peoples of the post-colonial world, the achievement of statehood was the condition of political emancipation. Second, claims to autonomy and sovereignty have a moral validity that has to be set against the increased stridency of cosmopolitan moral claims. Many states, although by no means all, fulfil purposes and represent values that deserve respect and may require protection from the power of

⁵ Richard Falk, *This Endangered Planet: Prospects and Proposals for Human Survival* (New York: Vintage Books, 1971), 37-8. For a more recent negative assessment of the states system's capacity to manage the global environment see John Dryzek, *Rational Ecology* (Oxford: Blackwell, 1987), esp. ch. 6.

⁶ William Ophuls, *Ecology and the Politics of Scarcity* (San Francisco: W. H. Freeman & Co., 1977), 219. For a discussion of others who view the centralization of power as the solution to collective action problems see Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge UP, 1990), 8-10.

⁷ For a classic discussion of the difficulties of transcending the states system see Hedley Bull, *The Anarchical Society: A Study of Order in World Politics* (London: Macmillan, 1977), esp. Pt. 3.

some global authority.⁸ Once power is given over, it is not easy to limit it to a particular sphere. Third, claims about the need to abolish or limit sovereignty have to be thought through in the context of all the other issues and problems of international life. The environment, although important, cannot be viewed in isolation. Fourth, it is far from clear that the creation of some supranational authority would in fact lead to more effective environmental management. The negotiations over the nature of a new political authority would be enormously difficult and time-consuming and would generate much conflict. This would almost certainly divert attention away from devising environmental agreements and could all too easily postpone the implementation of necessary environmental policies. Distributional conflicts between different parts of the world would still remain to be resolved within the new political structure. Local political authorities would still be required to implement effective environmental policies, and the current weakness of such authorities in many parts of the world would be reproduced within a broader political system. Finally, there is the basic paradox that if there were sufficient consensus to move beyond the state system, there would also be sufficient consensus to ensure a degree of inter-state co-operation that would make such a move largely unnecessary.

An alternative radical solution argues not for the creation of a global Leviathan but rather for the decentralization of power and authority.⁹ For its proponents such an approach would weaken

⁸ The case was put forcefully by two legal counsel in the Bush Administration in the US: 'Internationally, a command and control emphasis is simply not feasible . . . Creating a supranational organization to monitor the process would have dubious benefits. In advocating such an organization, many environmentalists tend to denigrate the value of the nation-state. At best, they see national sovereignty as an inconvenience, and at worst, an all but insurmountable obstacle to effective global environmental policy. However, environmentalism is not the only value worthy of protection. Being environmentally responsible does not require abandoning other important values, such as national self-determination. The modern nation-state is a manifestation of the bedrock principle of national self-government . . . National sovereignty is especially important to the developing countries. Many of these countries have only recently achieved their own independence. They are not likely to welcome suggestions that their interests should again be subordinated to "metropolitan" concerns. Any global program that does not take into account the legitimate value of the nation-state is doomed to failure—and rightly so.' C. Boyden Gray and David B. Rivkin, Jr., 'A "No Regrets" Environmental Policy', *Foreign Policy*, 83 (Summer 1991), 63-4.

⁹ Such a vision is implicit in the campaigning goals and priorities of many environmental pressure groups. See also Dryzek, *Rational Ecology*, esp. ch. 16.

the competitive drives of the global economy that intensify the depletion of natural resources and the degradation of the environment and in which environmental 'management' is often no more than the displacement of a problem from one sphere or locality to another. It would empower local communities which have a greater understanding of the specific ecosystems on which their economic livelihood depends. And it would build on the experience of those groups that have historically been able to create small-scale and sustainable forms of economic development. Whilst there are powerful arguments in favour of greater decentralization and empowerment of local communities, there are also important limitations: that empowerment of local communities and rational ecological management are not always consistent; that it neglects the broader functions of the state system in the many other fields of human activity; that the costs of disrupting the global economic system would be enormous and would also prove a potent source of conflict; and that there would continue to be a need for some degree of global co-ordination either for effective ecological management or out of considerations of social equity, but that such co-ordination would be infinitely more difficult in such a system because of the increased numbers of communities.

It is perfectly possible, indeed likely, that new forms of co-operation will be required, and that some further constraints on state sovereignty will emerge. Nevertheless, environmental issues will still of necessity be managed within the constraints of a political system in which sovereign states play a major part. This starting-point, recognized and adopted (albeit with differing degrees of enthusiasm) in all of the chapters in this volume, is a fundamental from which the present analysis of the international politics of the environment proceeds.

Clearly international negotiations and agreements are only one aspect of the management of the global environment. A great deal will depend on reform at the domestic level: on the growth of environmental awareness and changing individual attitudes and life-styles; on the reform of public policies that encourage unsustainable forms of development such as inappropriate agricultural or energy subsidies; on internalizing the costs of environmental damage by means of new taxes or the creation of new markets; on the implementation of new forms of 'environmental

accounting' that reflect the true value of natural capital; and on unilateral policy reforms adopted irrespective of the behaviour of other states.

Equally, international action is not limited to formal inter-state agreements, and states are by no means the only important actors. The attitudes, investment decisions, and capabilities of companies play a major role in determining how environmental problems are defined and dealt with by governments. Political pressure from business and concern about the impact of environmental regulation on economic activity, competitiveness, and specific industries can often lead states to obstruct international action. However, as Maull points out below in discussing Japan, market and competitive pressures can be a powerful 'transmission belt' leading to changes in states' environmental policies. The diffusion of green thinking through the workings of the global media, informed and spurred by environmental NGOs, is an additional, and insufficiently studied, aspect of environmental politics. The activities of environmental NGOs have assumed an important place in issue identification, agenda setting, policy formation, normative development, institution building, monitoring, and implementation.

Yet, while formal inter-state agreements are not always needed and certainly do not provide a complete picture of global environmental politics, they form the centrepiece of international efforts to deal with global environmental problems. Indeed the number and range of established or emerging rules and legal regimes in this field is striking.¹⁰ Moreover, the distinction between regulatory and market-based approaches to global environmental management, while philosophically important, is often drawn too sharply. Regulatory approaches may well require far more detailed sets of rules, but rules are also indispensable to market-based approaches: in expressing fundamental principles, in establishing and defining property rights over common resources where they do not currently exist, and in creating the

¹⁰ As environmental issues have grown in prominence and importance, the number, range, and political significance of international agreements has increased enormously on a bilateral, regional, and global basis. UNEP's *Register* lists 152 multilateral agreements (including Protocols and Amendments) on environmental issues up until 1990, of which 102 were concluded in the preceding 20 years. (*Register of International Treaties and Other Agreements in the Field of the Environment* Ref n (Nairobi: UNEP, 1991), UN doc. UNEP/GC.16/Inf.4.)

structure of the market itself and the mechanisms by which it will be monitored.

In order to lay out the issues involved and to provide a framework for evaluating the progress that has been made and the considerations which may influence or constrain future developments, the chapters in this book (and the main sections of the Introduction) are organized around three broad themes: first, the processes by which environmental rules and regimes have been and will be created, and the problems connected with their implementation; second, the past and future roles of formal international institutions in the international protection of the environment; and third, the nature and significance for international environmental protection of the conflicts between states over power, over the distribution of the costs of environmental management, and over questions bearing upon state sovereignty and freedom of action.

A. Standard Setting and Implementation

Inter-state environmental co-operation is increasingly directed toward agreeing upon, and implementing, international legal standards. Standard setting is necessary to define the general principles of collective management of the global environment and to formulate precise rules of process and of mandatory, permitted, or proscribed conduct. At the same time standards stabilize, reflect, and give contractual expression to the results of the underlying bargaining process between conflicting state interests. The strengths and limitations of existing international law and of the rule-making, implementation, and enforcement mechanisms presently available are examined in the chapters by Patricia Birnie and Elliot Richardson.¹¹ A slightly different

¹¹ See also A. E. Boyle, 'Saving the World: Implementation and Enforcement of International Environmental Law through International Institutions', *Journal of Environmental Law* 3 (1991), 229-45; Peter Saud, *Lessons Learned in Global Environmental Governance* (Washington, DC: World Resources Institute, 1990); Oscar Schachter, *International Law in Theory and Practice* (Boston, Mass.: Martinus Nijhoff, 1991); and Patricia Birnie and Alan Boyle, *International Environmental Law* (Oxford: Oxford UP, forthcoming).

approach, increasingly emphasized in international relations literature and espoused in this volume by Martin List and Volker Rittberger, focuses on the role of regimes in managing conflicts and solving collective action or common interest problems. Regimes include legal rules, but are defined more broadly as 'sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations'.¹² Although international law provides the principal frame of reference for those involved in inter-state negotiations, at the theoretical level there is a degree of complementarity between international law and regime theory. Regime theorists have tended to neglect the particular status of legal rules, to downplay the links between specific sets of rules and the broader structure of the international legal system, and to underrate the complexity and variety of legal rules, processes, and procedures. On the other hand, theoretical accounts of international environmental law have often paid rather little explicit attention to the political bargaining processes that underpin the emergence of new norms of international environmental law, to the role of power and interest in inter-state negotiations, and to the range of political factors that explain whether states will or will not comply with rules.¹³

¹² Stephen D. Krasner, 'Structural Causes and Regime Consequences: Regimes as Intervening Variables', in Stephen D. Krasner (ed.), *International Regimes* (Ithaca: Cornell UP, 1983), 2. For a survey of regime theory in general see Stephan Haggard and Beth A. Simmons, 'Theories of International Regimes', *International Organization*, 41 (1987), 491-517. For its application to the environment see especially Oran R. Young, *International Cooperation: Building Regimes for Natural Resources and the Environment* (Ithaca: Cornell UP, 1989). Further references are given in the chapter by List and Rittberger below.

¹³ An interesting example of an enforcement regime not intended to establish new normative standards is the Paris Memorandum of Understanding on port state control, concluded in 1982 among the 11 coastal EC states plus Finland, Norway, and Sweden. The general objective is to promote and harmonize efficient port state inspection of vessels in accordance with the standards laid down in six major maritime conventions, to which the participants are expected to become parties. Vessels found to have deficiencies 'clearly hazardous to safety, health or the environment' shall not be allowed to put to sea, except in very limited circumstances e.g. to proceed to a port capable of making the repairs. A Port State Control Committee is established, together with a computer centre in France in which results of inspections are stored and which can be accessed on-line and used for inter-port communications. The Secretariat is provided by the Dutch government. It is a low-cost arrangement, envisaged as 'a formal co-operative regime on enforcement issues but not as an international regime creating new legal rights and obligations for its parties.' See George Kasoulides,

1. *The creation of environmental law and regimes*

The general need for legal or other regimes if major global environmental problems are to be adequately addressed is scarcely in question. The attainment of even basic agreement on what arrangements are required is, however, much more complicated. One major reason for this is that global environmental issues are typically characterized by high levels of uncertainty in which the *definition and boundaries* of the 'problem', the *costs* of alternative policy responses, and the *identity* of the actors and their *interests* are all far from self-evident. This has a number of important consequences.

(i) *Research co-operation.* A great deal of international co-operation, especially since the Stockholm Conference in 1972, has been concerned with gathering information and promoting research on the character and extent of environmental problems: UNEP's research and monitoring activities are discussed in Peter Thacher's chapter, and other examples include the work of the Group of Experts on Scientific Effects of Marine Pollution (GESAMP), Unesco's Man and the Biosphere programme, the International Council of Scientific Unions' International Geosphere/Biosphere Programme ('A Study of Global Change'), and ICSU's Scientific Committee On Problems of the Environment (SCOPE).¹⁴

(ii) *Problems of scope.* The complexity of the science, together with the close links between environmental problems and economic processes, means that a great deal of negotiating time is spent deciding which aspects of a particular problem should be included in negotiations and which states should be involved. Thus, for example, the range of human activities that contribute to the greenhouse effect is extraordinarily wide, their relative weight varies from country to country, and the scientific evidence is far stronger in some areas than in others. In such a case, fixing the boundaries of the negotiation, the identity of the parties, and

'Paris Memorandum of Understanding: A Regional Regime of Enforcement', *International Journal of Estuarine and Coastal Law*, 5 (1990), 191. See also A. V. Lowe, 'A Move Against Substandard Shipping', *Marine Policy*, 6 (1982), 326.

¹⁴ Ronald Brickman, Sheila Jasanoff, and Thomas Hgen, *Controlling Chemicals: The Politics of Regulation in Europe and the United States* (Ithaca: Cornell UP, 1985), discuss the tendency in relation to toxic chemicals to share research findings but regulate unilaterally.

the range of their admissible interests becomes a central element of international negotiations. The criteria for such decisions may in part be technical. States might seek, for example, to include those aspects of a problem that are best understood or that can be most effectively monitored. But such decisions are also highly political given that they influence the distribution of costs and benefits and affect the extent of states' bargaining power and leverage. Such considerations may lead states to try and broaden the range of issues—as in the attempt by the developing states to link global environmental negotiations with both present economic inequality and their future development needs. But it may also lead states to exclude issues. Indeed the power of the North has been particularly visible in focusing attention on 'environmental' issues—and on the narrower category of global environmental issues—and in moderating, perhaps even minimizing, the concern of the South with the human development dimensions of the same agenda. International negotiations over a complex issue such as global climate change, with its multiple causes and global implications, can also readily be made into a symbol for, and entrée to, debates about appropriate development models, duties of technology transfer, and the structure of development assistance.

The merits and demerits of such linkages are discussed in several chapters in this volume. The problems of striking the balance in structuring such negotiations are addressed by Susskind and Ozawa. The relationship between issue linkage, bargaining power, and justice forms a central theme of the argument developed by Shue that poor nations not be required to sacrifice their own development to prevent the climate changes set in motion by the process of industrialization that has enriched the North.

(iii) *Adaptability and flexibility.* The perceived seriousness of many environmental problems (especially climate change, ozone depletion, loss of biodiversity, protection of forests) pushes states towards co-operation and collective management even though there continue to be very high levels of scientific and economic uncertainty. This in turn means that international agreements must be structured to provide scope for new regulations as new data becomes available, and to promote improved data collection and further scientific research. Typically such

agreements call for regular review in the light of changing scientific knowledge, and provide for close collaboration between rule-makers and research scientists.

The experience with control of substances depleting the stratospheric ozone layer constitutes a useful illustration. The 1985 Vienna Convention, which established general policy goals but no quantitative reductions, was almost immediately shown to be inadequate by evidence of ozone layer depletion over Antarctica.¹⁵ The response was to adopt the Montreal Protocol, but even before its adoption Mostafa Tolba asked the negotiators pointedly: 'Have we compromised so much that we have emasculated the agreement? Have we compromised so much that the ozone layer will continue to deteriorate?'¹⁶ The answer soon proved to be affirmative, as research established both that many of the substitutes envisaged in phasing out CFCs contributed seriously to the newly documented greenhouse effect, and that several substances not controlled under the Protocol were ozone-threatening. The 1990 London Amendments added a new Annex B to stabilize and eventually reduce emissions of carbon tetrachloride, methyl chloroform, and fully halogenated CFCs not covered in Annex A, and Adjustments hastened reductions in production and consumption of Annex A CFCs and halons, although not to the extent wished by thirteen OECD countries (joined in 1992 by the US) which unilaterally undertook to proceed more quickly. The damaging effect of substitutes was not, however, addressed beyond a general resolution to use them with great care and to seek more environmentally benign alternatives.¹⁷

The character of many environmental issues renders flexibility essential. Rigid and detailed sets of rules are likely to become

¹⁵ J. C. Farmer, B. G. Gardiner, and J. D. Shanklin (British Antarctic Survey), 'Large Losses of Total Ozone in Antarctica Reveal Seasonal ClO_x/NO_x Interaction', *Nature*, 315 (1985), 207; R. S. Stolarski *et al.* (NASA), 'Nimbus 7 Satellite Measurements of the Springtime Antarctic Ozone Decrease', *Nature*, 322 (1986), 808.

¹⁶ Quoted in Jamison Koehler and Scott A. Hajost (US EPA), 'The Montreal Protocol: A Dynamic Agreement for Protecting the Ozone Layer', *Ambio*, 20 (1991), 84.

¹⁷ See David D. Caron, 'Protection of the Stratospheric Ozone Layer and the Structure of International Environmental Lawmaking', *Hastings International and Comparative Law Review*, 14 (1991), 770. The text of the Montreal Protocol as amended at London is conveniently reproduced in Barry E. Carter and Philip R. Trimble (eds.), *International Law: Selected Documents* (Boston: Little, Brown, 1991), 731.

quickly outdated, and their effectiveness thereby undermined. For this reason, international environmental negotiations have increasingly led to agreements that put in place continuing, fully- or semi-institutionalized multilateral rule-making frameworks. Several related regulatory techniques have evolved to meet these demands for flexibility. One method is to include amendment procedures within the treaty and to list detailed 'technical' regulations in annexes to the treaty, which are made subject to regular review and can in many cases be amended by majority agreement. A further refinement is introduced by provisions that amendments become binding upon all states parties except those which specifically oppose them. Variants of this technique have long been used in Conventions adopted by the International Maritime Organization (IMO), such as the London Dumping Convention,¹⁸ and have also been employed in, for example, the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

A second, and increasingly common, technique is to begin with a framework treaty containing a statement of agreed general principles, together with mechanisms for promoting further research and strengthening data collection, and the establishment of a forum and timetable for subsequent negotiations on specific issues. Out of these negotiations emerge separate protocols covering in detail a specific aspect of the problem, and themselves subject to formal mechanisms for regular review and revision. The Geneva Convention on Long-Range Transboundary Air Pollution of 1979 provides a good illustration.¹⁹ It established monitoring stations, requirements for national reporting of emission levels, and general commitments to gradually reduce transboundary acid rain emissions. Subsequent Protocols, adopted as and when the necessary research had been completed and the requisite level of political agreement attained, provided for a 30 per cent reduction in sulphur dioxide from 1980 levels,²⁰ and for certain limitations on and reductions in emissions of

¹⁸ See Nagendra Singh, 'The United Nations and the Development of International Law', in Adam Roberts and Benedict Kingsbury (eds.), *United Nations, Divided World* (Oxford: Oxford UP, 1988), 184-5.

¹⁹ Printed together with the 1984 Protocol for Long-Term Financing of Monitoring, in *ILM* 24 (1985), 484.

²⁰ Protocol on the Reduction of Sulphur Emissions or Their Transboundary Fluxes by at Least 30 Per Cent (9 July 1985), *ILM* 27 (1988), 698.

nitrogen oxides.²¹ This group of acid rain agreements has been criticized, *inter alia*, for focusing on emission levels rather than on ambient air quality, for not providing for international trade in emission permits so as to encourage least-cost reductions, and for failing to charge polluters. Nevertheless, the basic format appears to have worked well. Certain improvements have been made in the similar format adopted under the 1985 Vienna Convention for the Protection of the Ozone Layer. The Montreal Protocol, which established the first quantitative reduction commitments, provided for amendments which bind only those states accepting them, and for adjustments to reduction levels for controlled substances which can be adopted by a qualified majority of the parties but bind all parties.²²

The Montreal Protocol, especially as enhanced by the 1990 London Amendments, applies pressure to participate by restricting and eventually prohibiting parties from trading in controlled substances with non-parties. Incentives were also formalized in agreements reached at London for commitments to technology transfer, and (pending the creation of a permanent Financial Mechanism) for the establishment of an Interim Multilateral Fund of some \$160 million (rising potentially to \$240 million) contributed principally by developed states to aid the implementation of the Protocol through non-ozone-depleting development in developing countries which are parties. The Fund is to be administered by UNEP but controlled by an Executive Committee comprising seven developing and seven non-developing countries party to the Protocol as Amended;²³ approved projects will be implemented by UNEP, UNDP, or the World Bank. Limited provisions are included for trade of quota production among parties to facilitate 'industrial rationalization'. Trade in controlled substances among parties is permitted, both to promote 'economic efficiency and

²¹ Nitrogen Oxides Protocol (1 Nov. 1988), *ILM* 28 (1989), 212. See also the Volatile Organic Compounds Protocol (Nov. 1991).

²² Adjustments require a two-thirds majority. Under the Montreal Protocol this must include states consuming at least 50% of the total consumption of the controlled substance, but under the 1990 London Amendments the two-thirds majority must include both a majority of developing countries (as defined in Art. 5, para. 1) and a majority of non-developing countries. Only states parties count in these calculations.

²³ See generally Caron, 'Protection of the Stratospheric Ozone Layer', 755-80; and Sylvia Maureen Williams, 'The Protection of the Ozone Layer in Contemporary International Law', *International Relations*, 10 (1990), 167-78.

free trade'²⁴ and to ensure that non-producing consumers are not spurred into beginning production in the period before suitable substitutes or alternatives are available. Developing-country parties with 1986 consumption levels below 0.3 kg per capita are allowed a ten-year grace period whenever they wish in the implementation of all reductions.

While variations and improvements on these precedents are being sought in the emerging climate change regime, the general format of framework convention and protocols appears to be, as Elliot Richardson points out in his chapter below, a much more viable model than, for instance, the single package deal approach embodied in such instruments as the 1982 Convention on the Law of the Sea. There are, however, potential drawbacks to the Convention-Protocol approach as currently practised: a number of these are discussed by Susskind and Ozawa.

A third and long-established technique is to provide for regular meetings of the parties to a fundamental instrument, to review the implementation of the basic arrangements and to make modifications or draft additional instruments. The International Whaling Commission has been setting catch limits since 1949, and more innovation was introduced under the Antarctic Treaty: regular and special meetings of the Consultative Parties produced several separate agreements, such as the 1972 Convention for the Conservation of Antarctic Seals, the 1980 Convention on the Conservation of Antarctic Marine Living Resources, and the ill-starred 1988 Wellington Convention on Antarctic Mineral Resources, as well as the Environmental Protocol to the Antarctic Treaty. Indeed the Conference of the Parties has become an established institutional feature in recent environmental instruments, including the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the 1991 African Convention on hazardous wastes,²⁵ the 1985 Vienna Convention for the Protection of the Ozone Layer, the Montreal Protocol, and the Montreal Protocol as Amended (although the latter two do not make formal provision for such a Conference, meetings of parties take place as subsets of the

²⁴ Koehler and Hajost, 'The Montreal Protocol', 84.

²⁵ The Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, concluded under the auspices of the OAU, 29 Jan. 1991. *ILM* 30 (1991), 773.

Vienna Convention meetings). Such institutions are often supplemented by intersessional working groups (for example, the open-ended working group established by the parties to make recommendations on modifications to the Montreal Protocol), and by informal meetings or initiatives often promoted by particular states or by the secretariat. It is notable that such specialized mechanisms have been preferred even where the Convention was adopted within an existing institutional framework such as the IMO or UNEP.

The character of specific international environmental regimes is heavily dependent on the nature of the issue, the level of knowledge about it, and the costs of alternative policy options. Several analysts have come to lay particular emphasis on knowledge as a core factor. Thus Richard Cooper has stressed the importance of there being a widely shared scientific consensus on the nature of the problem and its solutions.²⁶ Peter Haas has pointed to the role of 'epistemic communities' of scientists and specialists and to the critical role that these transnational communities play in promoting 'environmental learning'.²⁷ Haas defines epistemic communities as 'networks of knowledge based communities with an authoritative claim to policy relevant knowledge within their domain of expertise'.²⁸ However, as Stairs and Taylor point out, scientific communities are by no means necessarily consensual nor necessarily impartial. It is important to pay attention to the conflicts and tensions that occur *within* epistemic communities—to the sociology of scientific knowledge. It is also important to recognize the problematic relationship between the nature of scientific knowledge and debate (often characterized by high levels of uncertainty) and the kinds of knowledge (readily communicable, and accompanied by at least an aura of authoritative certainty) needed to spur public or political action.

²⁶ Richard Cooper, 'International Co-operation in Public Health as a Prologue to Macroeconomic Co-operation', in Richard Cooper *et al.* *Can Nations Agree? Issues in International Economic Cooperation* (Washington: Brookings Institution, 1989), 178–254.

²⁷ Peter Haas, *Saving the Mediterranean: The Politics of International Environmental Co-operation* (New York: Columbia UP, 1990); and Haas, 'Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control', *International Organization*, 43 (1989), 377–403.

²⁸ Peter M. Haas, 'Epistemic Communities and International Policy Co-ordination', in Peter M. Haas (ed.), *Knowledge, Power and International Policy Co-ordination*. Special Issue of *International Organization*, 46 (Winter 1992).

Several other factors implicated in international environmental law and policy formation and in the development of international regimes are often undervalued and merit particular attention. First, there is the increasingly important role of environmental NGOs, analysed in the chapters by Bramble and Porter and Stairs and Taylor. Environmental NGOs have played a major role in shifting public and political attitudes towards the environment and placing environmental issues high on the political agendas of an increasing number of states; in publicizing the nature and seriousness of environmental problems; in acting as a conduit for the dissemination of scientific research; and in organizing and orchestrating pressure on states, companies, and international organizations. Bramble and Porter trace the growth of US NGOs and evaluate their success in exploiting media attention and in lobbying the US government, the Congress, and Washington-based multilateral financial agencies. Their chapter highlights the obvious fact—but one neglected by those who seek to model international negotiations in game theoretic terms—that states are not unitary actors with clear sets of ordered interests and stable preferences. Rather state interests and international policy objectives with respect to the environment derive from a complex range of often-conflicting domestic pressures and forces within the government bureaucracy, within the legislative process, and within the broader political system. This provides environmental NGOs with ample scope for effective lobbying. The chapter by Stairs and Taylor on maritime waste disposal illuminates another aspect of NGO influence, namely the increasing extent to which NGOs are involved in the detailed process of rule-making and regime formation: influencing the drafting of agreements, providing input to scientific or policy working groups, supporting 'friendly states', mobilizing publicity, and seeking to shape the law-making process itself.²⁹

Second, there is the role of individuals in highlighting a particular problem (for example Norman Myers's work in drawing attention to problems of deforestation); in shaping international responses to environmental problems (the role of Maurice Strong); and in facilitating successful negotiating outcomes. Oran Young gives the examples of Tolba, Lang, and Benedick in

²⁹ See also Philippe Sands, 'The Environment, Community and International Law', *Harvard International Law Journal*, 30 (1989), 393.

the case of ozone negotiations.³⁰ In their chapter in this volume, Stairs and Taylor point to the role of individual scientists in shaping the direction of debate and the formation of a scientific consensus.

A third factor of particular importance is the impact that the broader foreign policy context can have on the process of environmental negotiations. On one level, attention must be paid to the relationship between environmental policy objectives and the range of other foreign policy goals. The chapter on Brazil illustrates how this interaction can work at times to facilitate and at times to hinder progress on environmental issues. More broadly, the prospects for international environmental negotiations will be affected by the overall climate of international relations. It was not accidental, for example, that international concern about the environment in the early 1970s coincided with a period of *détente* and with a more general shift away from the Cold War and regional security issues that had previously dominated the agendas of major states. In the 1990s there are many who suggest that the end of the Cold War will be followed by a new period of sustained concern for both development and the environment. Whilst there are factors pointing in this direction, it is far from pre-ordained. Political or military crises in, for example, the Middle East or the former Soviet Union rapidly divert political and media attention away from global environmental issues.³¹ It is also important not to overlook the possibility that the end of the Cold War might lead the United States towards a retreat from global involvement, to a period of introspection, and to an attempt to further disengage itself from the manifold problems of the developing world.³²

³⁰ Oran Young and Gail Osherenko, 'Testing Theories of Regime Formation', in Oran Young and Gail Osherenko (eds.), *The Politics of International Regime Formation: Lessons from the Arctic Cases* (forthcoming); and Oran Young, 'Political Leadership and Regime Formation: On the Development of Institutions in International Society', *International Organization*, 45 (1991), 281.

³¹ Many apparently 'diversionary' issues such as the 1990-1 Gulf War may trigger environmental problems of regional or global proportions.

³² Compare, e.g., the contrasting perspectives of Jessica Tuchman Mathews, 'Redefining Security', *Foreign Affairs*, 68 (1989), 162-77; and Stephen van Evera, 'Why Europe Matters, Why the Third World Doesn't: American Grand Strategy after the Cold War', *Journal of Strategic Studies*, 13 (1990), 1-51.

2. *The limits of international environmental agreements and the problem of compliance*

The fact that large numbers of international environmental agreements have been reached and numerous environmental regimes created is important and encouraging. But it does not in itself answer the sceptics. Analysing the conclusion of agreements and the formation of legal or other regimes is interesting and important, but it does not get to the heart of the matter and to the two central questions. First, to what extent and why do states actually implement and comply with the principles and rules to which they have agreed? Second, even if compliance is secured, do these agreements contribute appreciably to securing effective environmental management? In other words: to what extent, and in what ways, do legal instruments, customary international law rules, and international regimes matter?

The difficulties of reaching adequate agreements, and the weaknesses often found in such agreements as are concluded, are discussed in several chapters in this volume. States often prefer to agree only to non-binding guidelines or principles which they view as targets rather than firm obligations and which they are usually free to implement (or not) at whatever pace they see fit. Of the environmental treaties that have been concluded, many (although by no means all) relate to issues that do not engage core state interests, and the lessons from them are not necessarily transferable to other and more important issues. Treaties bind only those states that become parties to them, and under some instruments states are permitted to make reservations to specific articles. Treaties may contain deliberately ambiguous language designed to secure consensus and to paper over continuing disagreements or conflicts between states. Very few environmental treaties contain inescapable requirements that states resort to binding third-party procedures for the settlement of disputes, and sanctions for non-compliance only infrequently extend beyond polite if vigorous disapprobation. States are keen (and usually successful) in maintaining firm control over reporting, inspection, and monitoring procedures. The need to base rule-making and regime creation on consent or consensus means that many agreements reflect the ambitions of the slowest and embody as targets the lowest common denominator. This

can actually impede the efforts of those states anxious to implement tougher environmental standards, by legitimizing feeble compliance and opening free-rider and comparative advantage problems.

Many 'environmental' regimes (including some of the regional fisheries regimes) are portrayed by critics as users' clubs that reflect the self-serving economic interests of limited groups of states, rather than necessarily serving broader environmental purposes. The process of negotiation and regime creation is often extremely time-consuming and laborious (even the success story of ozone took nearly a decade), and further delays occur because of the need for treaties to be ratified (which may involve lengthy domestic processes) and because they can only come into force after ratification by an agreed number of states. Domestic legislation is often required to render treaties effective, which may add considerably to the lead time before effective entry into force. All these points reflect the abiding constraints of the state system and the fundamental facts that, in a decentralized legal system, no obligation can be imposed without consent and that states continue to be extremely resistant to the creation of any coercive mechanisms for enforcement.

In light of these features of the international system, it is important to consider the means by which implementation can be achieved and compliance may be secured.

(i) *General reasons for compliance.* In general states agree to, and commonly comply with, international environmental agreements because it is in their interests to do so. Agreements both reflect the shared interest in the collective management of a particular environmental problem (and especially in avoiding the often unknown, but potentially disastrous, costs of non-agreement) and embody a stable outcome to the underlying bargaining process between states over the distribution of the costs of collective action and other politically divisive issues. As the chapters in Part III illustrate, the resolution of this bargaining process is far from easy and will often require recognition of the special interests of particular states or groups of states. To meet the range of interests and to persuade states to participate, 'side payments' are needed which may take the form of differential obligations, financial inducements, mechanisms to facilitate the transfer of relevant technology, or market access. Agreement

may also require that states act 'counter-preferentially', focusing not just on short-term interests but taking into account considerations of equity, fairness, or some sense of the 'global common good'. But the central point is that, once agreements are reached, they are likely to be implemented because they reflect the interests of the states concerned.

The fear that others will formally agree but then subsequently defect and fail to comply remains a fundamental obstacle. However, international law and environmental regimes can play an important role in helping to overcome the assurance problem and to provide incentives against defection.³³ Legal regimes do this in various ways. In the first place, states generally comply with international obligations and choose to co-operate even against their short-term interests because of their broader concern with their reputation as reliable partners and their long-term interest in a rule-governed (or at least rule-structured) international system. Moreover, formal legal rules have a particular status because of the role of international law as constitutive of the state-system and therefore of the very identity and standing of the parties to an agreement.

Second, legal and other environmental regimes stabilize expectations and institutionalize the fact that states are involved in long-term co-operation and in negotiating over an increasingly wide range of issues—they are not just concerned with bargaining over a single problem at a single point in time. The need to negotiate and co-operate over a wide range of issues is characteristic of high levels of interdependence (leading to so-called 'issue density') and increases the interests of states in the predictability provided by rules and the salience of reputation. Such a picture also casts doubt upon characterizations of global environmental bargaining in terms of a one-off Prisoners' Dilemma game in which it is rational to defect. As game theory suggests, reiterated games and 'lengthening the shadow of the future' increases the likelihood of co-operative solutions.³⁴

³³ On the role of regimes in facilitating co-operation see esp. Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton UP, 1985); and Keohane, *International Institutions and State Power* (Boulder, Colo.: Westview, 1990).

³⁴ See Robert Axelrod, *The Evolution of Co-operation* (New York: Basic Books, 1984); and Kenneth A. Oye (ed.), *Co-operation Under Anarchy* (Princeton: Princeton UP, 1986), esp. Pts. I and IV.

Third, environmental regimes facilitate communication and learning, and contribute to a greater degree of transparency, which has two important effects. It undercuts the 'realist' position that anarchy inevitably generates mistrust and forces states to base policy on worst-case assumptions. Further, it leads to modifications in perceptions of state interests, with states coming to be more aware of the dangers of environmental degradation and the costs of non-agreement. In sum, environmental law and environmental regimes facilitate co-operation because of the functional benefits which they provide in the form of an order based not on coercion, but on the co-ordination of interests and of patterned expectations. This is not to suggest that satisfactory co-operation is easily achieved in the environmental sphere: in many cases it is not, and the instruments and regimes already in place are imperfect in many respects.

The prospects for compliance will also depend on the detailed nature of the environmental agreement. General declarations of principles and goals can be useful for generating a broad base of international acceptance for environmental objectives and for creating and maintaining forward momentum. They can also, as the chapter by Bramble and Porter illustrates, serve as a rallying point for NGO pressure and domestic political action. But their necessarily vague and general language makes it difficult even to assess the subsequent record of states, let alone to enforce compliance.

(ii) *International law techniques for implementation.* Several different sets of approaches to implementation and compliance are evident in existing international law. The first set of approaches rests centrally upon concepts of liability. Unless the state is able to rely upon some exculpatory defence, responsibility in principle attaches for any breach imputable to the state of an international legal obligation binding upon that state. In practice, however, liability in the environmental field will usually only flow from physical damage outside the state attributable to causes within the jurisdiction or control of the damaging state. It has been suggested that at least in the case of damage resulting from particularly hazardous activities such liability may be strict (or even absolute): that is, the damaging state is liable even where it is not otherwise at fault. Such liability has been imposed upon private parties (subject to upper limits) by

international instruments concerned with civil nuclear installations and with maritime oil transportation, and upon states parties directly in the 1972 Convention on International Liability for Damage Caused by Objects Launched into Outer Space. In general, however, liability attaches only where the damage results from breach of a substantive primary obligation, such as conduct expressly prohibited by treaty, or conduct falling below an accepted standard of care. In addition to compensating innocent victims, a liability regime shifts costs to those responsible for potentially harmful activities, and encourages both care and internalization of these costs. Liability contingent upon actual damage may have a deterrent effect, but such regimes on their own generally do not do enough to prevent environmental degradation and protect ecosystems from *future* damage. In practice there are only a limited range of activities and types of damage where formidable problems of defining and assessing actionable harm, victims, causation, and unacceptable risk do not occur. States have in any event been very reluctant to include liability provisions in environmental treaties, and to make claims against each other asserting the liability of other states. State liability regimes have a place, particularly in relation to single damaging episodes or hazardous activities known to entail long-term risks to identifiable victims, but they are unlikely to be of use in relation to damage with multiple causes or arising from widespread and not highly hazardous activity.

A second set of approaches emphasizes justiciable legal duties of an important procedural character. Thus in the *Corfu Channel* case the ICJ found Albania liable for breach of the duty to inform other states at least of an acute and unusual hazard, and the 1991 ECE Convention on Environmental Impact Assessment in a Transboundary Context establishes duties to conduct environmental assessments and to consult affected states about proposed or completed projects, together with an obligation to allow the public from all affected areas to participate in the assessment procedure. These procedural duties are important but insufficient to address many substantive environmental concerns.

A third set of legal approaches casts obligations in the form of a right of individuals or groups to a clean and sound environment, borrowing and extending concepts from human rights law. But these 'rights' remain vague and it is difficult to derive specific

sets of obligations and even harder to decide against whom such rights should be upheld.

The fourth, and most widely employed, set of approaches sees compliance and implementation in terms of establishing regulatory and supervisory frameworks, often with a permanent institutional basis. The myriad examples of this approach include the London Dumping Convention, the Vienna Convention and Montreal Protocol, the Convention on International Trade in Endangered Species, and the International Whaling Convention. The focus here is on elaborating detailed sets of rules, standards, and procedures; creating mechanisms for data collection and scientific assessment; and establishing a system of regular meetings to review state performance and to amend regulations in the light of changing circumstances. These regulatory frameworks can assume different forms: the institutional structure can be provided either by regular meetings of the parties to an agreement, or by establishing a permanent secretariat, or by establishing a formal commission made up of the representatives of the parties. Similarly, data collection can be achieved by requesting states to make formal periodic reports of the steps they have taken to secure implementation, or by establishing procedures for inspection and monitoring (although few environmental agreements presently allow for compulsory inspection, the Antarctic Treaty being an important exception).

Given the continuing limits of coercive enforcement, this approach draws its power from the elaboration of specific regulations against which state performance can be assessed, from the generation of the information needed to make such assessments, and from the transparency of, and publicity attaching to, the process. It lays less emphasis in practice on formal mechanisms of legal settlement (mediation, conciliation, arbitration, judicial settlement), instead favouring ongoing and institutionalized bargaining between the parties at both a technical and a political level. It relies heavily on the extent to which publicity and 'community pressure' will persuade states to improve compliance.³⁵ Moreover, this kind of approach can gradually be tightened as (or

³⁵ Cf. Michel Virally's analysis of the authorizing and legitimating function of international law, and of the central role of 'pression sociale' in securing compliance ('Panorama du droit international contemporain', 183 RCADI 9). See also the excellent discussion of legitimacy and justification by Thomas Franck, *The Power of Legitimacy Among Nations* (New York: Oxford UP, 1990).

if) consensus develops: by moving towards compulsory and more independent inspection and monitoring procedures, or by creating a complaints procedure. The difficulties of doing so, however, are illustrated by the experience in the ozone regime. The Montreal Protocol (Article 7) requires parties to report to the Secretariat (UNEP) on amounts of controlled substances produced, imported, and exported (to parties and to non-parties), and, under the London Amendments, on amounts destroyed or recycled as feedstocks. The reports are available to NGOs and news media, but some parties have failed to submit reports or have submitted only incomplete reports, and an *ad hoc* Working Group was established at the 1990 London meeting to try to enhance the effectiveness of the reporting system.³⁶ The 1985 Vienna Convention establishes obligations to refer disputes to negotiation, good offices, mediation, and conciliation, but the choice as to whether to accept an obligation to resort to binding third-party settlement is left to individual states.³⁷ The 1990 London meeting agreed that the concerns of any state party about another state party's fulfilment of its obligations could be raised in writing with the Secretariat, which would investigate and refer them to an Implementation Committee with a view to amicable resolution.³⁸

(iii) *Developing enforcement techniques.* It is widely acknowledged that implementation and enforcement has been the weakest part of international environmental law and related regimes.³⁹ The enforcement mechanisms already referred to comprise 'enforcement' of a rather soft sort. But the range and effectiveness of techniques for enforcement of international environmental norms has gradually been increasing, as Patricia Birnie demonstrates in her chapter below. First, legal enforcement is frequently possible within domestic legal systems. Whether they establish obligations of conduct or obligations of result in which the choice

³⁶ Caron, 'Protection of the Stratospheric Ozone Layer', 771-2.

³⁷ See Article 11. Sixteen states recorded their regret that compulsory procedures were not included—see *ILM* 26 (1987), 1535.

³⁸ See Peter Sand, 'International Co-operation: The Environmental Experience', in Jessica Tuchman Mathews (ed.), *Preserving the Global Environment* (New York: W. W. Norton, 1991), 271.

³⁹ 'In general the record of enforcement and compliance with international environmental legal rules has, for a considerable time, been thoroughly disappointing.' E. Somers, 'The Role of the Courts in the Enforcement of Environmental Rules', *International Journal of Estuarine and Coastal Law*, 5 (1990), 195.

of means is left to each state, environmental treaties often in effect oblige states to enact the necessary national laws and to enforce them against their own nationals and within their own territory. As Birnie points out, this obligation is a central part of the enforcement system. In addition, local legal remedies made available to non-nationals and non-residents may provide an important means of dealing with transborder or even other environmental harm. The 1974 Nordic Convention on the Protection of the Environment allows nationals of each Nordic country to bring proceedings in the administrative tribunals or courts of the state from which transboundary pollution emanated,⁴⁰ and the European Community applies a similar rule.⁴¹ The extension of local court jurisdiction to activities of nationals carried out offshore or in zones of contested jurisdiction is essential to, for example, the regime established by the Antarctic Environment Protocol.⁴² The traditional flag-state jurisdiction over vessels has been supplemented in the case of marine pollution and maritime standards by extensive port-state jurisdiction, by plenary coastal state prescriptive and enforcement jurisdiction in the territorial sea (indeed, the coastal state must enforce its anti-pollution laws against all vessels under Article 4 of the 1973 MARPOL Convention⁴³), and by coastal state inspection jurisdiction (rising to powers of arrest if the coastal state is threatened by major damage) in the EEZ in the event of substantial discharge threatening the environment.⁴⁴

Second, obvious failure to comply with important environmental agreements may well lead individual states to exert pressure. Decentralized and in some cases extra-legal sanctions continue to play a role in the international legal system.

Third, and of particular importance, the information gathered

⁴⁰ *ILM* 13 (1974), 591.

⁴¹ *Bier v. Mines de Potasse d'Alsace*, [1976] ECJ Rep. 1735, a decision of the European Court of Justice. In 1977 an OECD Council Recommendation urged member states to apply a similar policy to transfrontier pollution suits—text in *ILM* 16 (1977), 977.

⁴² See also the national legislation adopted in relation to deep sea-bed activities, and the legislation adopted by e.g. the UK before the effective demise of the 1988 Wellington Convention.

⁴³ Reprinted with 1978 amendments in *ILM* 17 (1978), 546.

⁴⁴ See the 1982 Law of the Sea Convention, Pt. XII; and, for commentary, Alan Boyle, 'Marine Pollution under the Law of the Sea Convention', *AJIL* 79 (1985), 363.

under such regimes, their transparency, and in certain cases their forums all provide opportunities for pressure by NGOs. This may well prove to be the most important element of 'coercive' enforcement of international environmental agreements. As Stairs and Taylor point out, states are often very reluctant to criticize or condemn each other. The resources and influence of NGOs provide them with the capacity to publicize non-compliance by states, to establish and fund their own monitoring and investigation, and to employ their own (not necessarily totally disinterested) scientists to evaluate the claims made by states.

(iv) *Problems of state capability.* The capacity of states to implement international agreements presents further difficulties. In the case of many weak states in the developing world, effective compliance may be hindered by the lack of efficient domestic institutions, by a severe lack of appropriate human, financial, and technological resources, by deep-rooted economic problems, by the absence of a stable political coalition in favour of implementing environmentally more rational policies, or by civil unrest and ethnic strife. These problems reinforce the centrality of the link between environment and development. Without continued economic and political development, the ability of many states to translate international obligations into coherent and effective domestic policy reforms will remain limited. This has been recognized by many states and international institutions, and is one of the priorities of, for example, the UNDP's technical assistance programme within the Global Environmental Facility (GEF).

B. Institutions

Many intergovernmental institutions play important roles in such activities as international environmental rule-making, policy-making, research, monitoring, training, project financing, and supervision. Three of particular significance are examined in this book: the United Nations system (especially UNEP), the World Bank, and the European Community.

The major intergovernmental institution created specifically to address environmental issues is the United Nations Environment

Programme (UNEP). UNEP was established as a subsidiary organ of the General Assembly by GA Res. 2297 (XXVII), following a recommendation of the Stockholm Conference.⁴⁵ The principal decision-making body is the Governing Council (elected by the UN General Assembly), which hitherto has comprised 58 states although proposals for expansion are under discussion. The Secretariat comprises some 200 people, based mainly at UNEP headquarters in Nairobi but with operations also in Geneva and New York. UNEP has had only two Executive Directors: Maurice Strong of Canada (1973-5) and Dr Mostafa Tolba of Egypt (1976-). UNEP is not a Specialized Agency of the UN, and plays a monitoring, co-ordinating, and catalytic role rather than a large-scale directly operational role. Co-ordination between different bodies within the UN is the overall responsibility of the UN's Administrative Committee on Co-ordination (ACC), at which UNEP is represented. In the environmental field co-ordination is also pursued through the DOEM (Designated Officials for Environment Matters), which brings together representatives of UN specialized agencies and other UN bodies (although not the World Bank or the IMF), and through the Committee of International Development Institutions on the Environment (CIDIE), which brings UNEP and the UNDP together with representatives of the World Bank, the regional development banks, and other intergovernmental financial bodies.

UNEP has been seriously underfunded in relation to the scope of its mandate ever since it was established, although since 1989 the states members of the Governing Council have begun to try to improve the position. It was intended that the costs of the Secretariat and Governing Council would be met from the UN's regular budget, and that all other UNEP activities would be financed by voluntary contributions to the UN's Environment Fund. In fact the financial difficulties of the UN, arising particularly from non-payment of dues by member states and from limited budgetary growth, have extended to UNEP, and the Environment Fund has perforce been used to meet some regular expenditures. More seriously, most states were singularly parsimonious in their contributions to the Fund, so that over much of UNEP's history the purchasing power of the Fund has been

⁴⁵ Report of the Stockholm Conference on the Human Environment, UN doc. A/CONF.48/14/Rev.1 (1972).

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lower even than the 1973 base level. Receipts for 1989 were estimated at \$39.17 million, rising to \$52.33 million in 1990. In 1989 the Governing Council set a target of \$100 million for contributions to be reached by 1992, and in 1991 the target for 1995 was raised to \$245 million. Spending on Programme Activities was estimated at \$68 million for the biennium 1990-1, rising to a projected \$180 million for the 1992-3 biennium.⁴⁶ UNEP was also administering 13 general trust funds and 26 technical co-operation trust funds at the end of 1990, with a total projected expenditure in 1990 of \$14 million, up from \$8.2 million the previous year.⁴⁷

UNEP's mandate is threefold: the global environmental assessment programme ('Earthwatch'), environmental management activities, and supporting measures. It has focused its limited resources mainly on the assessment function, to considerable effect. The Global Environment Monitoring System (GEMS), the Global Resource Information Database (GRID) satellite-fed geographical information system, and the Infoterra data system are prominent examples, but UNEP has engaged in an immense range of co-operative ventures with such bodies as the International Council of Scientific Unions (ICSU), the OAU, the OAS, and the World Bank. It publishes the International Register of Potentially Toxic Chemicals, supplying detailed information and policy proposals on over 80,000 chemicals. The management activities have been on a much smaller scale, with UNEP mainly playing a catalytic or consultative role, as exemplified by the Regional Seas Programme, or contributing to training and institution-building.⁴⁸

UNEP suffers somewhat from isolation, being one of the very few global international organizations to have its headquarters outside Europe and North America, although the symbolic and

⁴⁶ The projected percentage allocations among the 13 programmes or budget lines were: environmental assessment (21.7), terrestrial ecosystems (17.5), environmental awareness (13.2), technical and regional co-operation (10.6), oceans (10.3), energy, industry and transportation (6.4), environmental management measures (5.8), water (5.0), atmosphere (4.0), human health and welfare (2.1), human settlements and environment (1.9), lithosphere (0.9), peace, security, and the environment (0.6). These were the Secretariat proposals—see UN doc. UNEP/GC.16/23 (24 Jan. 1991), 2.

⁴⁷ UN doc. UNEP/GC.16/24 and Corr. 1 (1991).

⁴⁸ See generally Peter Thacher's chapter below; also Thacher, 'Multilateral Co-operation and Global Change', *Journal of International Affairs*, 44 (1991), 433-55.

perhaps the policy-input value of the Nairobi location is considerable. Much more acute, however, has been the lack of state commitment to the pursuit and implementation of the principles set out in the Declaration and Plan of Action of the Stockholm Conference. The Nairobi Declaration, adopted at the 10th anniversary conference in 1982, noted bluntly that 'the Action Plan has only been partially implemented, and the results cannot be considered as satisfactory, due mainly to inadequate foresight and understanding of the long-term benefits of environmental protection, to inadequate co-ordination of approaches and efforts, and to the unavailability and inequitable distribution of resources'.⁴⁹ Although numerous environmental problems were addressed at regional levels in the 1970s and early 1980s, global standard-setting activity and policy initiatives only began to intensify in the second half of the 1980s. UNEP was centrally involved in the adoption of the Vienna Convention in 1985 and the Montreal Protocol in 1987, the conclusion of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal in 1989, and (with the World Meteorological Organization) in the negotiations for a framework climate change convention. The Brundtland Commission took a positive view of UNEP's activities, although suggesting that more could and should be done. The UN General Assembly at last focused serious attention on institutional aspects of global environmental issues in 1989, supporting the 'further strengthening of the role of the Environment Programme as the central catalysing, co-ordinating and stimulating body in the field of environment within the United Nations system'.⁵⁰

Proposals for the establishment of a new international organization to deal with environment or environment/development issues have frequently been mooted. The pre-Stockholm suggestion that an Environmental Security Council be established has been refloated, and other recent proposals include the creation of either a General Assembly environmental committee, a Sustainable Development Commission encompassing the entire UN system as well as treaty bodies, or a slightly less

⁴⁹ Report of the Governing Council, UN doc. A/37/25 (1982), 49.

⁵⁰ GA Res. 44/229 (adopted without vote, 22 Dec. 1989). See also the very detailed and carefully negotiated Res. 44/228 of the same date, dealing with UNCED 1992.

ambitious UN International Development Council.⁵¹ Some proposals, such as the appointment at a high level within the UN Secretariat in New York of an 'environment supremo', or the Brundtland Commission's proposal for a UN Board for Sustainable Development chaired by the UN Secretary-General,⁵² are relatively minor adjustments which involve only questions of efficiency, demarcation, and bureaucratic structure. Others, such as the convening of *ad hoc* intergovernmental or independent expert reviews similar to the IPCC, are likely to receive significant support, and UNEP has successfully initiated the establishment of a small-scale UN centre for emergency environmental assistance.

There is, however, considerable reluctance among states to embark on the creation of new institutions. Problems of duplication would be almost inevitable unless UNEP were incorporated into a new organization, and even then problems of overlap, turf allocation, co-ordination, and co-operation with existing organizations would persist and probably become more acute. The tortuous process of improving planning and co-ordination of existing UN economic and social activities and reforming and revitalizing ECOSOC has made little progress, reinforcing doubts about the addition of new institutions. The philosophical commitment to limited government and paring of bureaucracies in several major contributing states, while perhaps past its zenith, remains strong in their international policy-making. Funding remains highly problematic, and least-cost approaches are likely to be favoured. These elements are all evident in, for instance, the reluctance of the Antarctic Treaty parties to establish a permanent institution, and in the discussions about reducing the costs of the institutions contemplated in the 1982 Convention on the Law of the Sea. The preparations for UNCED, including the IPCC and the Intergovernmental Negotiating Committee, were undertaken by *ad hoc* secretariats of limited size and deliberately established

⁵¹ Many such proposals are summarized in UN docs. A/CONF.151/PC/36 and A/CONF.151/PC/80 (1991). On proposals for an Economic Security Council, see e.g. Maurice Bertrand, 'Can the United Nations Be Reformed?', in Roberts and Kingsbury (eds.), *United Nations, Divided World*, 204-8. Note also the long-standing proposals for a special environmental disputes chamber of the International Court of Justice—e.g. P. C. Jessup, *The Price of International Justice* (New York: Columbia UP, 1971), 61-70.

⁵² *Our Common Future* (1987).

for only a limited period. Specialist institutional frameworks in the form of Conferences of the Parties and more continuous working groups or commissions will continue to be established in conjunction with new instruments, and in some cases modest secretariats to support these may be established autonomously or within existing organizations. Beyond this, the dominant view among states is that to meet new environmental needs over the next few years UNEP should be strengthened, and perhaps the balance of its activities adjusted more to Geneva and New York, rather than a new institution of general competence established.

At least as difficult as the problem of creating or strengthening specifically environmental intergovernmental organizations is the problem of integrating environmental management considerations into the work of existing institutions. The World Bank has attracted particular scrutiny in this regard, partly as a result of the NGO campaign described by Bramble and Porter. Although its Washington location and other factors have perhaps earned it disproportionately more attention than other international financial and development institutions (including the Asian and African Development Banks, the OECD's Development Assistance Committee, and the European Community's Lomé Convention and other development operations), the Bank is a major lender, and its influence in the formation of general international development and project-financing policy is considerable, as is its ability to influence the policies of borrowing states. The problems of transforming a lending institution which had paid little express attention to environmental issues into one which is expected to take a leading role in such areas as project-wide environmental impact assessment, forestry policy, the implementation of biodiversity or global warming investment projects under the Global Environmental Facility, and the development of more environmentally sensitive economic analysis (reflected in a limited way in such concepts as that of sustainable net national product) are discussed from a personal perspective by Ken Piddington. Although material and human resource constraints and bureaucratic and other factors inevitably affect the Bank's performance, the most important determinant of the Bank's policies and impact is its relationship with its member states, which may be that of intergovernmental forum, lender, or aid conduit.

The European Community is unique in the degree of supra-

national authority the member states have conferred on it. While it is for this reason most unlikely to provide a model for global environmental governance in the foreseeable future, the Community is an important actor in international environmental affairs both through its internal competence to set policies applicable within the Community and through its external competence to negotiate agreements and provide development assistance on behalf of the member states. The interrelations between these roles, and the complexities inherent in each of them, are addressed by Nigel Haigh. He draws particular attention to the potential difficulties of international environmental negotiation in situations of mixed or divided competence, where the Community is able to negotiate some aspects of a treaty but the member states retain competence to negotiate other aspects individually. While the Community may in some respects be a more difficult counterpart than a state in negotiations, in areas where it has internal competence its ability to develop and harmonize environmental standards, and to implement and enforce internationally agreed standards, among the twelve member states is a significant attribute.

C. Power and Conflicts of Interest

Environmental issues have the potential to generate various forms of conflict. At the extreme this can involve overt social/military conflict between states over access to, and control of, natural resources. In many parts of the developing world control over rivers and access to water resources threatens to emerge as a major source of tension (as in the cases of the Jordan, Litani, Euphrates, and Nile rivers in the Middle East). Social/military conflict can also occur within or between states when environmental degradation undermines the social stability or economic viability of a society and leads to political instability, a breakdown of political order, and increased flows of refugees.⁵³ This volume does not deal directly with such conflicts, nor with the analytical constructs to address these conflicts, such as the

⁵³ See e.g. Jodi L. Jacobson, *Environmental Refugees: A Yardstick of Habitability* (Washington, DC: Worldwatch Paper No. 86, 1988).

concept of 'environmental security'.⁵⁴ It is, however, important to recognize that the perceived need to avert such nascent or latent conflicts may influence the attitudes of states towards international environmental negotiations.

The two broad areas of conflict that are most directly relevant to international environmental negotiations are, first, conflicts over the setting of priorities and the distribution of the costs of managing the global environment and, second, conflicts over a variety of sovereignty-related issues.

1. *The setting of priorities and the distribution of costs*

It is true that ecological interdependence creates a powerful incentive to co-operate. Radical environmental degradation of the planet will involve losses for all and, more so than in the case of economic interdependence, states are locked into a situation from which they cannot escape. Against this, priorities have to be determined, and the costs of managing ecological interdependence and of finding effective solutions to major environmental threats have to be distributed between states. This provides both the primary focus for bargaining and a potent source of political conflict.

The capacity to determine the international agenda has rightly been identified as a particularly effective form of power.⁵⁵ The industrialized countries have successively focused international attention on those issues which affect them most directly: marine pollution, ozone depletion, global climate change, biodiversity, and deforestation. By contrast, the states and peoples of the South have had less success in securing prominence for environmental problems closely associated with development.

⁵⁴ For various approaches to issues of environmental security see Michael Renner, *National Security: The Economic and Environmental Dimensions*, Worldwatch Paper No. 89 (May 1989); Mathews, 'Redefining Security'; Norman Myers, 'Environment and Security', *Foreign Policy*, 74 (1989), 23-41; Daniel Deudney, 'The Case Against Linking Environmental Degradation and National Security', *Millennium*, 19 (1990), 461-76; Sergei V. Vinogradov, 'International Environmental Security: The Concept and Its Implementation', in A. Carty and G. Danilenko (eds.), *Perestroika and International Law* (New York: St Martin's Press, 1990), 196-207; Arthur H. Westing, 'Environmental Component of Comprehensive Security', *Bulletin of Peace Proposals*, 20 (1989), 129-34; and Westing, 'Environmental Security and Its Relation to Ethiopia and Sudan', *Ambio*, 20 (1991), 168-71.

⁵⁵ On this subject see Steven Lukes, *Power: A Radical Approach* (London: Macmillan, 1974).

The problem of distributing the costs of environmental management and the seriousness of conflict will depend on the character of the issue and the structure of state interests.⁵⁶ In some cases the costs of tackling environmental problems are relatively modest and the benefits clearly large,⁵⁷ in which case distributional problems are unlikely to be insuperable. Nor do such problems necessarily prevent agreement even on global issues, as demonstrated by the successful negotiation of the Ozone Convention and its amended and extended Protocol. In this instance the scientific evidence established the nature and general consequences of the danger beyond any reasonable doubt. The costs within the industrialized world of abandoning CFC production could be accurately assessed and were low relative to the expected benefits. Similarly, the costs of assisting developing countries to move away from CFCs were moderate and involved the creation of a fund of only \$160-240 million over three years. Finally, the number of relevant technologies was limited and controlled by a very small group of companies, for whom the shift to CFC substitutes and the transfer of technologies to developing countries did not entail reduced earnings. Indeed, restrictions on CFCs would create a new market for substitutes in which the major companies had a strong lead. Yet the ozone precedent is a narrow one. On an increasing number of environmental issues a discussion of the costs of international action is inseparable from broader debates about the character of economic development and about the need to promote more sustainable forms of development. Global action on the environment is therefore centrally concerned with developing new understandings of sustainable development and agreeing the changes in the pattern of economic activity needed to implement them. The need to move away from traditional forms of development characterized by high levels of energy use, the intensive exploitation of natural resources, and extensive environmental degradation will often involve significant economic and social costs that have to be distributed between states. As Cooper and Beckerman point out in

⁵⁶ See Scott Barrett, 'The Problem of Global Environmental Protection', and K. G. Mäler, 'International Environmental Problems', both in *Oxford Review of Economic Policy*, 6 (1990), 68-108.

⁵⁷ The 1976 Bonn Convention for the Protection of the Rhine Against Pollution by Chlorides involved abatement costs of \$136 million. See Peter Sand, 'International Co-operation', in Mathews (ed.), *Preserving the Global Environment*, 245.

their chapters below, agreeing a fair and acceptable distribution between the industrialized countries will be far from easy. But the principal fissure is between the developed and developing world, and it is the potential for the global environment to become a major source of confrontation between North and South that renders it such a fundamental international political issue.

Three aspects of the problem are especially critical. First, there is the striking asymmetry between North and South in terms of both existing resource use and existing relative contributions to such global problems as ozone depletion and global climate change. With around 16 per cent of the world's population, the industrialized countries are responsible for 48 per cent of current greenhouse gas emissions. US per capita CO₂ emissions are 5.7 tonnes as against an average for the developing world of under 0.5 tonnes. On one estimate a US population of 230 million emits the same volume of greenhouse gases as 4 billion people in the South.⁵⁸ Second, the global environment will have to accommodate the future development needs of the South. The unavoidable need for continued economic development arises partly from the inevitable increases that are going to occur in the population of the developing world and partly from the pressing necessity to overcome the present appalling levels of poverty and deprivation. Third, the failure to promote more sustainable forms of economic development in the South may well work to undermine many forms of environmental action undertaken by the North. If Indian and Chinese per capita carbon emissions reached US levels, world emissions would treble.⁵⁹

As Hurrell points out, the position of major developing countries has shifted substantially since the time of the Stockholm Conference in 1972. Developing countries have come to lay greater weight on the importance of protecting the environment and on moving towards more sustainable patterns of economic development.⁶⁰ But the stress on continued economic development

⁵⁸ Leiv Lunde, *The North/South Dimension in Global Greenhouse Politics* (Lysaker, Norway: Fridtjof Nansen Institute, 1990), 9.

⁵⁹ See Michael Grubb, *The Greenhouse Effect: Negotiating Targets* (London: RIIA, 1989), 17.

⁶⁰ For important position statements of developing countries see the Tlatelolco Platform on Environment and Development, 4-7 Mar. 1991, UN doc. A/CONF.151/PC/L.30, and the Beijing Declaration of 41 Developing Countries, 18-19 June 1991, reprinted in *China Daily*, 20 June 1991, p. 4.

remains dominant. Development cannot be sacrificed as a means of stabilizing the global environment—because of the enormous social and political pressures facing all governments in the developing world; because sacrificing growth would perpetuate the unjust division between rich and poor; because the rich countries bear the greatest responsibility for existing environmental problems; because poverty is itself a central cause of environmental destruction; and because the ability of poor countries to adapt to future environmental changes can only be increased by continued social and economic development.⁶¹

In addition to bearing the costs of solving environmental problems within the developed world, the rich countries are therefore being faced with various demands from the South. First, the South demands that the rich countries take the first steps in tackling global environmental threats (for instance, by reducing CO₂ emissions) and that, as the principal beneficiaries of past emissions, they bear a disproportionate share of the costs. Second, declarations from the South call for the rich countries to provide assistance to the South to cover the costs of specific measures to tackle global environmental threats so that resources are not diverted from development. As Peter Thacher points out, the central demand is for 'additionality', in other words new and additional assistance, whether in the form of financial transfers or the transfer of environmentally related technology on concessional terms. Third, the developing world is demanding assistance in dealing with the many serious environmental problems within their own countries which do not (yet) directly affect the North (desertification, water and air pollution in urban centres, etc.). Finally, there is the argument for additional development assistance unrelated to specific environmental projects, above all

⁶¹ Not all of these positions are shared by representatives of all developing countries. Many are subject to critiques, including those from environmentalists in developing countries. Anil Agarwal, for instance, argues that 'development cannot be true development unless it is environmentally harmonious . . . The best and most immediate form of development for the poor is often the improvement and the regeneration of their immediate environment.' He argues for more local self-determination at community level, and criticizes over-consumption in Western life-styles and in those of Third World élites. 'The world-market system, as it grows, distorts local land-use systems in more and more subsistence communities and renders them environmentally unsustainable . . . It is not enough to say that the overuse of chlorofluorocarbons is destroying the global environment. Over-demand for bananas is also destroying the global environment.' 'The North-South Perspective: Alienation or Interdependence?', *Ambio*, 19 (1990), 94-5.

in the form of reducing both the burden of foreign debt and the level of Northern protectionism.

Many developing countries are demanding the linking of environment and development to serve as the basis for a 'new, just and equitable international order'. These claims are being made partly out of considerations of equity and justice, arguments that are carefully explored by Henry Shue in his chapter below. But underlying them also is the belief that the environment provides the South with a new source of leverage and bargaining power. This power is essentially 'negative' and derives from the ability of the South to undermine agreements on global environmental issues. Any reductions in greenhouse gas or CFC emissions agreed by the industrialized countries could be easily undercut by increases on the part of a few large developing countries (particularly China, India, and Brazil). The claims here need to be treated with some caution. The costs to many developing countries of undermining global environmental co-operation may well be substantial. For example, China, with around 25 per cent of the world's population, has access to only about 5 per cent of the world's water resources, which global warming could reduce to just 3.5 per cent. Environmental priorities differ between developing countries, and there may well be opportunities for the North to exploit divisions or to 'co-opt' or 'buy off' certain particularly important developing countries. Not employing environmentally efficient technologies will reduce the competitiveness (and even the right of entry) of Southern products in the markets of the industrialized world. Finally the leverage of the South has to be balanced against the far wider range of power resources available to the industrialized countries.

Distributing the costs of global environmental management is complicated by a number of other factors. First, the question of costs is complicated because of the high levels of both scientific and economic uncertainty. There is uncertainty amongst scientists over the nature, scope, and seriousness of global climate change. There is uncertainty over the future development of the technologies which may enable societies to adapt to future environmental changes. And there is enormous uncertainty over the assessment of the costs and benefits of alternative policy options. As Cooper and Beckerman argue, assessing the costs and benefits of abatement and adaptation responses to global

climate change is made extremely difficult by the high levels of scientific uncertainty, by the range of economic activities involved, and by the fact that so many of the costs will arise only in the future.⁶²

Second, negotiations are complicated because the costs of unchecked environmental degradation will not fall evenly. Some countries may stand to make substantial gains as a result of global warming, whilst rising sea levels threaten many low-lying, poor, and often densely populated regions with destruction. According to the argument presented by Beckerman, the economic impact for the industrialized countries of unchecked (or at least only moderately reduced) greenhouse gas emissions would be small, whilst radical reductions would be enormously expensive. Moreover it is precisely these societies that are most able—in technological, economic, and social terms—to adapt to such negative environmental developments as may occur. On this analysis, whilst there may be a strong case for cost-effective 'no-regret' policies (for instance, in the form of greater energy efficiency), there is little incentive to embark on large-scale transfers of technology or financial resources to the developing world.⁶³

Third, the definition of sustainable development remains contested. State representatives from both North and South now use the same lexicon of sustainable development, and both have come to pay far more (if still far from identical) attention to environmental problems. In one sense negotiations are about the means of achieving a common and agreed goal. But on closer inspection the exact nature of the goal proves to be blurred. Although it has acquired a very wide currency, the phrase 'sustainable development' does not have a generally accepted

⁶² See generally William D. Nordhaus, 'A Sketch of the Economics of the Greenhouse Effect', *American Economic Review*, 81 (1991), 146; Nordhaus, 'The Cost of Slowing Climate Change: A Survey', *Energy Journal*, 12 (1991), 37-65; David Pearce (ed.), *Blueprint 2: The Greening of the World Economy* (London: Earthscan, 1991), esp. chs. 2, 3, and 4.

⁶³ See also Richard D. Morgenstern, 'Towards a Comprehensive Approach to Global Climate Change Mitigation', *American Economic Review*, 81 (1991), 140, pointing out several pitfalls in existing economic analyses of costs and benefits of greenhouse gas emission strategies, and noting that while difficulties in obtaining data cause analyses to focus on the US (and other industrialised economies), there are 'very real possibilities that the damages of global climate change may be greater and/or the marginal costs of emission reduction lower in developing countries', and that optimal controls on greenhouse gases for the global economy may be tighter than for the US alone.

definition. A 'sustainable' economy has been defined as one 'using only renewable resources (and those only at a rate at which they are replenished) and producing only low, non-accumulating levels of pollution'.⁶⁴ However, such a radical approach is not what is contemplated by states as a policy goal nor what is proposed by most policy analysts.⁶⁵

Once the notion of sustainable development is unpacked, conflicts over basic values can easily re-emerge. How much development is compatible with ecological rationality? What forms of development are to be promoted, and who is to decide? To what extent should questions of social justice and equity within developing countries be included in definitions of sustainability (as argued, for instance, by the Brundtland Report)? On what criteria should considerations of inter-generational equity be based?

Fourth, the competitive pressures of both the international political system and the global economy reinforce the natural concern of states with relative gains and losses. States are inherently self-regarding, and governments are expected by their constituencies to ensure that the state and the influential groups within it do not suffer a relative loss or bear a disproportionate share of the environmental burden. States, represented by governments, are not concerned solely with maximizing their absolute welfare but also with their relative position within the international political and economic systems. Their utility is in this basic sense interdependent. They are 'positional' as well as 'atomistic' actors and are unlikely to accept schemes for environmental management that might have serious implications for the competitive position of their economies, that might undermine their long-term power positions, or that would increase their vulnerability to outside pressure.⁶⁶ The extent to which states are preoccupied with relative gains will depend on the particular issue, and a rather more optimistic position is taken in the chapter

⁶⁴ Ernst U. von Weizsäcker, 'Sustainability: A Task for the North', *Journal of International Affairs*, 44 (1991), 422.

⁶⁵ For further discussion of sustainability, see WCED, *Our Common Future*; D. W. Pearce, E. B. Barbier, and A. Markandya, *Sustainable Development: Economics and Environment in the Third World* (London: Edward Elgar, 1990); and Peter Thacher's chapter below.

⁶⁶ See Joseph M. Grieco, 'Anarchy and the Limits of Co-operation: A Realist Critique of the Newest Liberal Institutionalism', *International Organization*, 42 (1988), 485-507.

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by List and Rittberger. Nevertheless, the tendency of the states system to exacerbate concern with relative gains and losses remains an important feature of international environmental negotiations.

Finally, the broader political and economic context must again be emphasized. Thus, for example, US attitudes towards the consequences of unchecked environmental degradation in the developing world will not be based solely (or perhaps even principally) on economic, ecological, or moral considerations. Political and strategic imperatives mean that certain areas matter more than others. On the one hand, the current trends towards regionalism may well spill over into a greater willingness to make concessions to particular groups of states in the interests of the broader regional project. On the other, geopolitical concern for environmentally induced instability in, say, Egypt is far more likely to persuade Western policy-makers of the need for global action than the threat of still further human misery in, say, Bangladesh.

2. *Sovereignty issues*

From one perspective, differences between states over the protection and maintenance of sovereignty have been moderated by recent trends. Thus developing countries have come to accept that environmental degradation within states is a matter of legitimate interest to the outside world, being both of 'international concern' (suggesting that it is legitimate for other states to become involved), and of 'common concern to humankind'.⁶⁷ Recent declarations have also acknowledged the rights of NGOs both to involve themselves within the 'domestic' environmental affairs of developing countries and to participate in global negotiations.⁶⁸ They also accept the rights of individuals and of indigenous peoples to play a legitimate role in environmental management.⁶⁹ Finally, the development of international environmental law has reduced the autonomy (although, apart from the EC, not the legal capacity or 'sovereignty') of states and

⁶⁷ Beijing Declaration of 41 Developing Countries, para. 1.

⁶⁸ See e.g. the Tlatelolco Platform on Environment and Development, para. 21. UN doc. A/CONF.151/PC/L.30, 22 Mar. 1991.

⁶⁹ Tlatelolco Platform, para. 18.

provided for the international regulation of an increasing range of domestic environmental activities.

Despite these developments, sovereignty questions remain the focus of much actual and potential political conflict. One issue concerns the difference between those states and political groups who believe that greater authority does need to be vested in an international environmental authority and those who do not. Many states continue to be extremely reluctant to give up authority over the procedures of rule-making or rule-implementation. Even quite limited proposals, for example the use of majority voting for amending 'technical' annexes, have often met with considerable resistance. The Beijing Declaration restates the centrality of sovereignty for the developing countries: 'The developing states have the sovereign right to use their own natural resources in keeping with their developmental and environmental objectives and priorities.'⁷⁰ Moreover, the stress on sovereign rights is by no means limited to the developing world. Both on the environment and in several other areas of international law, the USA has manifested at least as much reluctance as any major developing country to accept constraints on its sovereign rights.

A second issue concerns the distribution of decision-making authority. How are decisions over the global environment to be taken? What voting procedures and decision-making structures should be adopted? For example, many developing countries are reluctant to see the World Bank entrusted with environmentally related development assistance because of the disproportionate influence over the Bank wielded by the major industrialized nations. For this reason developing countries have emphasized the importance of equality between states (and hence of one-state, one-vote voting procedures), and have tended to favour the creation of new institutions. Concerns over sovereignty often converge around the vexed issue of conditionality, in other words the attachment of environmental conditions to flows of trade, aid, investment, loans, and technology. Conditionality has been consistently denounced in recent statements by the developing countries and disputes have already arisen, for example, over the imposition of environmentally related conditions in World Bank project lending. Yet the Northern countries are united in believing that environmentally related resource trans-

⁷⁰ Beijing Declaration, para. 6.

fers should entail a significant degree of conditionality. Underlying this might be the determination to maintain political control, a desire to ensure that the resources are efficiently invested, or a wish to benefit particular groups within developing countries. Moreover, calls for environmental conditionality come on top of well-established forms of economic conditionality (common to many forms of IMF lending) and coincide with moves to apply conditionality in other areas—to support democratization and to press states to reduce levels of arms spending. In addition to increasing the sovereignty concerns of the developing countries, the mushrooming of conditionality raises complex questions of monitoring, enforcement, and dealing with problems of ‘cross-conditionality’ and the clashes that emerge between different sets of conditions. A different problem of conditionality relates to market access, where states restrict the import of products whose production infringes environmental standards set by the importing country, by the country of production or export, or by international agreement. The wider questions of the relation between environmental safeguards and the open liberal market trading systems embodied in the GATT and regional free trade agreements have not yet been adequately resolved.⁷¹

This leads to the third source of potential conflict, namely the broader, if still largely submerged, arguments about environmental management and non-intervention. The fragility of many states in the developing world represents one of the weakest links in the structure of global environmental management. It may well be possible to secure international agreements on global environmental issues. But even with substantial levels of external assistance many of the poorest or most politically divided societies in the developing world may well prove unable to implement effective environmental policies. Although this may have little impact on some global issues (such as global emissions of greenhouse gases), states with particular resources such as forests will be increasingly seen as managers of a global resource. Other states may fail to protect their own populations from disastrous environmental degradation, or to manage water resources in an efficient and equitable manner,

⁷¹ See esp. the Report of the GATT Dispute Settlement Panel on *United States Restrictions on Imports of Tuna*, ILM 30 (1991), 1598.

damaging both themselves and their neighbours. Such a situation is likely to give rise to calls for greater and more direct outside intervention and, as is already evident within the broader debate over the future role of the United Nations, any such proposals are likely to become a source of significant conflict and controversy.

Conclusion

Can the existing international system, dominated by sovereign states but powerfully shaped also in relation to environment and development issues by multinational corporations, international institutions, and non-governmental scientific and political groups, respond adequately to the burgeoning environmental challenges? States have achieved the requisite degree of co-operation in relation to some of the less difficult issues, including marine pollution, Antarctica, the protection of the stratospheric ozone layer, and to a lesser extent acid rain and the transboundary movement of hazardous wastes. More complex and difficult problems have at least been accorded recognition on the international agenda, and new forums and institutional responses have begun to appear.

It would be wrong to assume, however, that the universal rhetoric of ecological interdependence translates readily into effective international action. Even in established environmental regimes, implementation and enforcement lag far behind the achievements of standard-setting. The potentially vast magnitude of the climate change issue, and the fundamental scientific uncertainties about it, render economic and social analysis and political decision-making deeply problematic, and threaten to exceed the present capacities of the system. The environmental issues whose roots lie in the absence of, or unsustainability of, development in the South and in eastern Europe are even wider in scope, and raise fundamental issues about the distribution of power, wealth, and resources, and about the values which should or will determine that distribution. Even where states are able to reach agreement on general principles in these areas, concrete measures and effective institutional structures may be much more elusive. It is with the means and prospects for developing such principles, measures, and structures that this book is principally concerned.