

## Chapter 22

# Environmental issues

JOHN VOGLER

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### Reader's Guide

As environmental problems transcend national boundaries they come to be a feature of international politics. This chapter indicates that environmental issues have become increasingly prominent on the international agenda over the last fifty years, assisted by the effects of globalization. It shows how this has prompted attempts to arrange cooperation

between states, and surveys the form and function of such activity with reference to some of the main international environmental regimes. Because climate change has become a problem of such enormous significance, a separate section is devoted to the efforts to create an international climate regime. This is followed by a brief consideration of how some of the theoretical parts of this book relate to international environmental politics.

## Introduction

Although humankind as a whole now appears to be living well above the earth's carrying capacity, the **ecological footprints** of individual states vary to an extraordinary extent. See, for example, the unusual map of the world (Fig. 22.1), where the size of countries is proportionate to their carbon emissions. Indeed, if everyone were to enjoy the current lifestyle of the developed countries, more than three additional planets would be required.

This situation is rendered all the more unsustainable by the process of **globalization**, even though the precise relationship between environmental degradation and the over-use of resources, on the one hand, and globalization, on the other, is complex and sometimes contradictory. Globalization has stimulated the relocation of industry, population movement away from the land, and ever-rising levels of consumption, along with associated emissions of effluents and waste gases. While often generating greater income for poorer countries exporting basic goods to developed country markets, ever-freer trade can also have adverse environmental consequences, by disrupting local ecologies and livelihoods.

On the other hand, there is little evidence that globalization has stimulated a 'race to the bottom' in environmental standards, and it has even been argued that

increasing levels of affluence have brought about local environmental improvements, just as birth rates tend to fall as populations become wealthier. Economists claim that globalization's opening up of markets can increase efficiency and reduce pollution, provided that the environmental and social damage associated with production of a good is properly factored into its market price. Similarly, globalization has promoted the sharing of knowledge and the influential presence of **non-governmental organizations** (NGOs) in global environmental politics. Whatever the ecological balance sheet of globalization, the resources on which human beings depend for survival, such as fresh water, a clean atmosphere, and a stable climate, are now under serious threat.

Global problems may need global solutions and pose a fundamental requirement for **global environmental governance**, yet local or regional action remains a vital aspect of responses to many problems; one of the defining characteristics of environmental politics is the awareness of such interconnections and of the need to 'think globally—act locally'. NGOs have been very active in this respect, as shown in **Chapter 21** of this book.

Despite the global dimensions of environmental change, an effective response still has to depend on a fragmented international political system of over 190

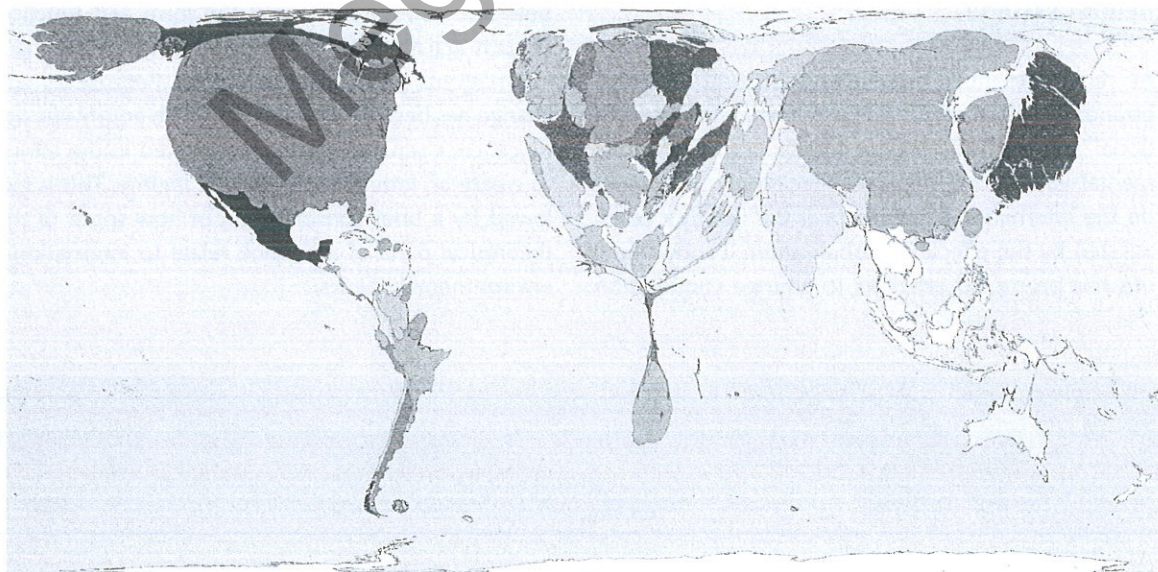


Figure 22.1 Map of world in proportion to carbon emissions

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<http://www.worldmapper.org>

sovereign states. Global environmental governance consequently involves bringing to bear inter-state relations, international law, and international organizations in addressing shared environmental problems. Using the term 'governance'—as distinct from government—implies that regulation and control have to be exercised in the absence of central government, delivering the kinds of service that a world government would provide if it were to exist. You should refer to **Chapter 19** for the essential concepts employed in regime analysis, which is commonly applied in the study of international governance.

### Key Points

- The current use and degradation of the earth's resources is unsustainable and closely connected in sometimes contradictory ways to the processes of globalization.
- There are vast inequalities between rich and poor in their use of the earth's resources and in the ecological shadow or footprint that they impose on it.
- The response at the international level is to attempt to provide global environmental governance. In a system of sovereign states, this involves international cooperation.

## Environmental issues on the international agenda: a brief history

Before the era of globalization there were two traditional environmental concerns: conservation of natural resources and the damage caused by pollution. Neither pollution nor wildlife respect international boundaries, and action to mitigate or conserve sometimes had to involve more than one state. There were also some (mostly unsuccessful) attempts to regulate exploitation of maritime resources lying beyond national jurisdiction, including several multilateral fisheries commissions and the 1946 International Convention for the Regulation of Whaling (see **Box 22.1**).

Post-Second World War global economic recovery brought with it evidence of new pollution, leading to international agreements in the 1950s and 1960s covering such matters as discharges from oil tankers. This was, though, hardly the stuff of great power politics. Such 'apolitical' matters were the domain of new United Nations Specialized Agencies, like the Food and Agriculture Organization, but were hardly central to diplomacy at the UN General Assembly (UNGA) in New York.

However, in 1968 the UNGA agreed to convene what became the 1972 UN Conference on the Human Environment (UNCHE) 'to focus governments' attention and public opinion on the importance and urgency of the question'. This Conference led to the creation of the United Nations Environment Programme (UNEP) and the establishment of environment departments by many governments. Yet it was already clear that, for the countries of the South—constituting the majority in the UNGA—environmental questions could not be separated from their demands for development, aid, and the restructuring of international economic relations. This provided the political basis for the concept

of sustainable development (see **Box 22.2**, also see **Ch. 28**). Before this was formulated by the Brundtland Commission in 1987 (WCED 1987), the environment had been edged off the international agenda by the global economic downturn of the 1970s and then by the onset of the second cold war (see **Ch. 4**).

By that time, new forms of transnational pollution such as 'acid rain' were causing concern alongside dawning scientific realization that some environmental problems—the thinning of the stratospheric ozone layer and the possibility of climate change—were truly global in scale. The relaxation of East–West tension created the opportunity for a second great UN conference in 1992. Its title, the UN Conference on Environment and Development (UNCED) reflected the idea of sustainable development and an accommodation between the environmental concerns of developed states and the economic demands of the South. The 1992 UNCED or 'Earth Summit' was at the time the largest international conference ever held. It raised the profile of the environment as an international issue, while providing a platform for both *Agenda 21* and international conventions on climate change and the preservation of biodiversity. The most serious arguments at UNCED were over aid pledges to finance the environmental improvements under discussion. Rio also created a process at the UN to review the implementation of its agreements. The Commission on Sustainable Development was to meet at intervals and there were follow-up UNGA Special Sessions and full-scale conferences.

On UNCED's tenth anniversary in 2002, the World Summit on Sustainable Development (WSSD) met at Johannesburg. The change of wording indicated how conceptions of environment and development had

### Box 22.1 Chronology

1946	International Convention for the Regulation of Whaling
1956	UK Clean Air Act to combat 'smog' in British cities
1958	International Convention for the Prevention of Pollution of the Sea by Oil
1959	Antarctic Treaty
1962	Rachel Carson publishes <i>Silent Spring</i>
1967	Torrey Canyon oil tanker disaster
1969	Greenpeace founded
1971	At the Founex Meeting in Switzerland, Southern experts formulate a link between environment and development
1972	United Nations Conference on the Human Environment (UNCHE) in Stockholm Establishment of the United Nations Environment Programme (UNEP)
1973	MARPOL Convention on oil pollution from ships Convention on International Trade in Endangered Species (CITES)
1979	Long-Range Transboundary Air Pollution Convention (LRTAP)
1980	Convention on the Conservation of Antarctic Marine Living Resources
1982	UN Law of the Sea Convention (enters into force in 1994)
1984	Bhopal chemical plant disaster
1985	Vienna Convention for the Protection of the Ozone Layer The Antarctic 'ozone hole' confirmed
1986	Chernobyl nuclear disaster
1987	Brundtland Commission Report Montreal Protocol on Substances that Deplete the Ozone Layer
1988	Establishment of the Intergovernmental Panel on Climate Change (IPCC)
1989	Basel Convention on the Transboundary Movement of Hazardous Wastes
1991	Madrid Protocol (to the Antarctic Treaty) on Environmental Protection
1992	United Nations Conference on Environment and Development (UNCED) held at Rio de Janeiro. Publication of the Rio Declaration and <i>Agenda 21</i> . United Nations Conventions on Climate Change (UNFCCC) and Biological Diversity (CBD) both signed. Establishment of the Commission on Sustainable Development (CSD).
1995	World Trade Organization (WTO) founded
1997	Kyoto Protocol to the UNFCCC
1998	Rotterdam Convention on Hazardous Chemicals and Pesticides Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters
2000	Cartagena Protocol to the CBD on Biosafety Millennium Development Goals set out
2001	US President Bush revokes signature of the Kyoto Protocol
2002	World Summit on Sustainable Development (WSSD), Johannesburg; Johannesburg Plan of Implementation
2005	Entry into force of the Kyoto Protocol and introduction of the first international emissions trading system by the European Union
2006	International discussions commenced on the climate change regime after 2012
2007	Fourth Assessment Report of the IPCC; Bali CoP produces a 'road map' for climate negotiations
2009	Copenhagen climate CoP fails to provide a new international agreement
2010	Nagoya Protocol to the CBD on access and benefit sharing
2011	Durban climate CoP aims to produce a new agreement by 2015
2012	Rio+20 Conference

shifted since the 1970s. Now discussion was embedded in recognition of the importance of globalization and of the dire state of the African continent. The eradication of **poverty** was clearly emphasized, along with practical progress in providing clean water, sanitation, and agricultural improvements. One controversial element was the role to be played in such provision by private-public sector partnerships. Ten years later, and in

the shadow of a major downturn in the global economy, Rio+20 met in Brazil. It attracted little public attention, but it did resolve to set 'sustainable development goals for the future'.

While the UN conferences marked the stages by which the environment entered the international political mainstream, they also reflected underlying changes in the scope and perception of environmental problems.

### Box 22.2 Sustainable development

Over fifty separate definitions of sustainable development have been counted. Its classic statement was provided by the 1987 Brundtland Commission Report:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

(Brundtland et al. 1987: 43)

Behind it lay an explicit recognition of limitations to future growth that were social, technological, and environmental. In addressing them, emphasis was placed on needs, and the highest priority was given to those needs experienced by the world's poor. Central to the concept was the idea of fairness between generations as well as between the rich and poor currently inhabiting the planet.

By the time of the 2002 World Summit the concept had been subtly altered:

to ensure a balance between economic development, social development and environmental protection as interdependent and mutually reinforcing components of sustainable development.

(UNGA, A/57/532/add.1, 12 December 2002)

Ensuring environmental sustainability, by integrating sustainable development principles into national decision-making, was the seventh of eight UN Millennium Development Goals agreed in 2000.

As scientific understanding expanded, it was becoming a commonplace, by the 1980s, to speak in terms of global environmental change, as most graphically represented by the discovery of the 'ozone hole' and the creeping realization that human activities might be endangering the global climate. Alongside actual environmental degradation and advances in scientific knowledge, the international politics of the environment has responded

to the issue-attention cycle in developed countries and the emergence of green political movements. They were fed by public reactions to what was seen as the industrial destruction of nature as exemplified by Rachel Carson's influential book *Silent Spring* (1962). There was also a long series of marine oil spills and industrial accidents, which gave rise to popular alarm. The failure of established political parties to embrace these issues effectively encouraged the birth of several new high-profile NGOs—Friends of the Earth, Greenpeace, and the World Wildlife Fund for Nature—alongside more established pressure groups such as the US Sierra Club and the British Royal Society for the Protection of Birds. In the developed world public attention waxed and waned, reviving in the early years of the twenty-first century as the spectre of climate change appeared. Here, as elsewhere, there were calls for international action and effective environmental governance, but what exactly did this entail? The next section attempts to answer this question by reviewing the functions of international environmental cooperation.

#### Key Points

- In the late nineteenth and early twentieth centuries, international environmental politics was strictly limited, but from around 1960 its scope expanded as environmental problems acquired a transnational and then a global dimension.
- The process was reflected in and stimulated by the three great UN conferences of 1972, 1992, and 2002, whose most important role was to make the connection between the international environmental and development agendas, as expressed in the important concept of sustainable development.
- International environmental politics reflected the issue-attention cycle in developed countries and relied heavily on increasing scientific knowledge.

## The functions of international environmental cooperation

International cooperation establishes governance regimes to regulate transboundary environmental problems and sustain the global commons. Regimes encompass more than formal agreements between states, although these are very important (see Ch. 19). Moreover, there are other functions and consequences of international cooperation beyond regime formation.

The pursuit of power, status, and wealth is rarely absent from international deliberations. This is often neglected in discussions of international environmental cooperation, even though many of the great international gatherings, and even some of the more mundane ones, clearly reflect struggles for national and organizational advantage. Organizations seek to maintain their financial and staff resources as well as their place within

the UN system. UNEP, for example, despite extensive debates over granting it the higher and more autonomous status of a UN Specialized Agency, remains a mere Programme. Some suspect that much of the activity at international environmental meetings is simply to issue declarations convincing domestic publics that something is being done, even if environmental conditions continue to deteriorate.

### Transboundary trade and pollution control

When animals, fish, water, or pollution cross national frontiers, the need for international cooperation arises; the regulation of transboundary environmental problems is the longest-established function of international cooperation, reflected in hundreds of multilateral, regional, and bilateral agreements providing for joint efforts to manage resources and control pollution. Prominent examples of multilateral environmental agreements (MEAs) include the 1979 Long-Range Transboundary Air Pollution Convention and its various protocols and conventions governing such things as the cross-border movement of hazardous waste and chemicals.

Controlling, taxing, and even promoting trade has always been one of the more important functions of the state, and trade restrictions can also be used as an instrument for nature conservation, as in the 1973 Convention on International Trade in Endangered Species (CITES). The use of trade penalties and restrictions by MEAs has been a vexed issue when the objective of environmental protection has come into conflict with the rules of the GATT/World Trade Organization (WTO) trade regime (see Box 22.3 and Ch. 16). Such a problem arose when the international community attempted to address the controversial question of the new biotechnology and genetically modified organisms (GMOs) by developing the 2000 Cartagena Protocol to the UN Convention on Biodiversity. Opponents argued that measures to regulate the movement of GMOs were an attempt to disguise protectionism rather than to safeguard the environment and human health. Whether the WTO trade rules should take precedence over the emerging biosafety rules was debated at length until the parties agreed to avoid the issue by providing that the two sets of rules should be 'mutually supportive'. The background to such arguments is a wider debate about the relationship between trade and the environment.

#### Norm creation

Over the last thirty years the development of international environmental law and associated norms of acceptable

#### Box 22.3 Trade and the environment

The issue of the relationship between trade and environmental degradation is much broader than disputes over the relationship between the World Trade Organization (WTO) and particular multilateral environmental agreements (MEAs). Globalization is partly shaped by the efforts of the GATT/WTO to open up protected markets and expand world trade. Many green activists argue that trade itself damages the environment by destroying local sustainable agriculture and by encouraging the environmentally damaging long-range transport of goods. The rearrangement of patterns of production and consumption has indeed been one of the hallmarks of globalization. Liberal economists and apologists for the WTO claim that if the 'externalities', such as the pollution caused, can be factored into the price of a product, then trade can be beneficial to the environment through allowing the most efficient allocation of resources. In this view, using trade restrictions as a weapon to promote good environmental behaviour would be unacceptable—and, indeed, the rules of the WTO allow only very limited restrictions to trade on environmental grounds (GATT XXg), and certainly not on the basis of 'process and production methods'. A number of trade dispute cases have largely confirmed that import controls cannot be used to promote more sustainable or ethical production abroad, including the famous 1991 GATT Tuna–Dolphin case which upheld Mexican and EC complaints against US measures blocking imports of tuna caught with the methods that kill dolphins as by-catch. Developing-country governments remain resistant to green trade restrictions as a disguised form of protection for developed world markets.

behaviour has been both rapid and innovative. Some are in the form of quite technical policy concepts that have been widely disseminated and adopted as a result of international discussion. The precautionary principle has gained increasing but not uncritical currency. Originally coined by German policy-makers, this principle states that where there is a likelihood of environmental damage, banning an activity should not require full and definitive scientific proof. (This was a critical issue in the discussions on GMOs mentioned above.) Another norm is that governments should give 'prior informed consent' to potentially damaging imports.

The UN Earth Summits were important in establishing environmental norms. The 1972 Stockholm Conference produced its 'Principle 21', which combines **sovereignty** over national resources with state responsibility for external pollution. This should not be confused with *Agenda 21*, issued by the 1992 Rio Earth Summit, a complex forty-chapter document of some 400 pages that took two years to negotiate in UNCED's Preparatory Committee. *Agenda 21* was frequently derided, not least because of its non-binding character,

but this internationally agreed compendium of environmental 'best practice' subsequently had a wide impact and remains a point of reference. For example, many local authorities have produced their own 'local Agenda 21s'. Under the Aarhus Convention (1998), member governments agreed to guarantee to their publics a number of environmental rights, including the right to obtain environmental information held by governments, to participate in policy decisions, and to have access to judicial processes.

### *Aid and capacity building*

Frequent North–South arguments since Rio about the levels of aid and technology transfer that would allow developing countries to achieve sustainable development have seen many disappointments and unfulfilled pledges. In 1991, UNEP, UNDP, and the World Bank created the Global Environmental Facility (GEF) as an international mechanism, specifically for funding environmental projects in developing countries. Most environmental conventions now aim at **capacity building** through arrangements for the transfer of funds, technology, and expertise, because many of their member states simply lack the resources to participate fully in international agreements. The stratospheric ozone and climate change regimes aim to build capacity and could not exist in their current form without providing for this function.

### *Scientific understanding*

International environmental cooperation relies on shared scientific understanding, as reflected in the form of some important contemporary environmental regimes. An initial framework **convention** will signal concern and establish mechanisms for developing and sharing new scientific data, thereby providing the basis for taking action in a control protocol. Generating and sharing scientific information has long been a function of international cooperation in such public bodies as the World Meteorological Organization (WMO) and myriad academic organizations such as the International Council for the Exploration of the Seas (ICES) and the International Union for the Conservation of Nature (IUCN). Disseminating scientific information on an international basis makes sense, but it needs funding from governments because, except in areas like pharmaceutical research, the private sector has no incentive to do the work. International environmental regimes usually have standing scientific committees and subsidiary bodies to support their work. Perhaps the greatest international effort to generate new and authoritative

scientific knowledge has been in the area of climate change, through the Intergovernmental Panel on Climate Change (IPCC) (see **Box 22.6**).

### *Governing the commons*

The global commons are usually understood as areas and resources that do not fall under sovereign jurisdiction—they are not owned by anybody. The high seas and the deep ocean floor come into this category (beyond the 200-mile exclusive economic zone), as does Antarctica (based on the 1959 Antarctic Treaty). Outer space is another highly important common, its use being vital to modern telecommunications, broadcasting, navigation, and surveillance. Finally, there is the global atmosphere.

The commons all have an environmental dimension, as resources but also as 'sinks' that have been increasingly degraded. The fish and whale stocks of the high seas have been relentlessly over-exploited to the point where some species have been wiped out and long-term protein sources for human beings are imperilled. The ocean environment has been polluted by land-based effluent and oil, and other discharges from ships. It has been a struggle to maintain the unique wilderness of the Antarctic in the face of increasing pressure from human beings, and even outer space now faces an environmental problem in the form of increasing amounts of orbital debris left by decades of satellite launches. Similarly, the global atmosphere has been degraded in a number of highly threatening ways, through damage to the stratospheric ozone layer and, most importantly, by the enhanced greenhouse effect now firmly associated with changes to the earth's climate. This is often characterized as a 'tragedy of the commons'. Where there is unrestricted access to a resource that is owned by no one, there will be an incentive for individuals to grab as much as they can and, if the resource is finite, there will come a time when it is ruined by over-exploitation as the short-term interests of individual users overwhelm the longer-run collective interest in sustaining the resource (see **Box 22.4**).

Within the jurisdiction of governments it may be possible to solve the problem by turning the common into private property or nationalizing it, but for the global commons such a solution is, by definition, unavailable. Therefore the function of international cooperation in this context is the very necessary one of providing a substitute for **world government** to ensure that global commons are not misused and subject to tragic collapse. This has been done through creating regimes for the governance of the global commons, which have enjoyed varying degrees of effectiveness.

### Box 22.4 The tragedy of the commons—local and global

Many writers, including Garrett Hardin (1968), who coined the term 'tragedy of the commons', have observed an inherent conflict between individual and collective interest and rationality in the use of property that is held in common. Hardin argued that individual actions in exploiting an 'open access' resource will often bring collective disaster as the pasture, fish stock (common pool), or river (common sink) concerned suffers ecological collapse through over-exploitation. Of course, no problem will be perceived if the 'carrying capacity' of the common is sufficient for all to take as much as they require, but this is rarely now the case due to the intensity of modern exploitation and production practices, and recent scientific advances have sharpened humankind's appreciation of the full extent of the damage imposed on the earth's ecosystems. Hardin's solution to the dilemma—enclosure of the commons through privatization or nationalization—has only limited applicability in the case of the global commons, for two main reasons: it is physically or politically impossible to enclose them, and there is no central world government to regulate their use.

Many of the functions discussed above can be found in the global commons regimes, but their central contribution is a framework of rules to ensure mutual agreement between users about acceptable standards of behaviour and levels of exploitation, consistent with sustaining the ecology of the commons.

Enforcement poses difficult challenges due to the incentives for users to 'free ride' on these arrangements by taking more than a fair share, or refusing to be bound by the collective arrangements. This can potentially destroy regimes because other parties will then see no reason to restrain themselves either. In local commons regimes, inquisitive neighbours might deter rule-breaking, and a similar role at the international level can be performed by NGOs. However, it is very difficult to enforce compliance with an agreement on the part of sovereign states, even when they have undertaken to comply—a fundamental difficulty for international law and hardly unique to environmental regimes (see Ch. 18). Mechanisms have been developed to cope with this problem, but how effective

they, and the environmental regimes to which they apply, can be is hard to judge, as this involves determining the extent to which governments are in legal and technical compliance with their international obligations. Moreover, it also involves estimating the extent to which state behaviour has actually been changed as a result of the international regime concerned. Naturally, the ultimate and most demanding test of the effectiveness of global commons regimes is whether or not the resources or ecologies concerned are sustained or even improved.

For the Antarctic, a remarkably well-developed set of rules, designed to preserve the ecological integrity of this last great wilderness, has been devised within the framework of the 1959 Treaty. The Antarctic regime is a rather exclusive club: the Treaty's 'Consultative Parties' include the states that had originally claimed sovereignty over parts of the area, while new members of the club have to demonstrate their involvement in scientific research on the frozen continent. Antarctic science was crucial to the discovery of a problem that resulted in what is perhaps the best example of effective international action to govern the commons. In 1985, a British Antarctic Survey balloon provided definitive evidence of serious thinning of the stratospheric ozone layer. A diminishing ozone layer is a global problem par excellence, because the layer protects the earth and its inhabitants from the damaging effects of the sun's ultraviolet radiation. A framework convention was signed about the issue in 1985, followed in 1987 by the Montreal Protocol, imposing international controls over ozone-depleting chemicals. The further evolution of the ozone layer regime offers the paramount example of how international cooperation can achieve an effective solution to a global environmental problem. The problem's causes were isolated, international support was mobilized, compensatory action was taken to ensure that developing countries participated, and a set of rules and procedures was developed that proved to be effective, at least in reducing the concentration of the offending chemicals in the atmosphere, if not yet fully restoring the stratospheric ozone layer (see Box 22.5).

### Key Points

- International environmental meetings serve several political objectives alongside environmental aims.
- A key function of international cooperation is transboundary regulation, but attempts at environmental action may conflict with the rules of the world trade regime.
- International action is needed to promote environmental norms, develop scientific understanding, and assist the participation of developing countries.
- International cooperation is necessary to provide governance regimes for the global commons.



### Box 22.5 The Montreal Protocol and stratospheric ozone regime

The thinning of the stratospheric ozone layer arose from a previously unsuspected source—artificial chemicals containing fluorine, chlorine, and bromine, which were involved in chemical reaction with ozone molecules at high altitudes. Most significant were the CFCs (chlorofluorocarbons), which were developed in the 1920s as 'safe' inert industrial gases and which had been blithely produced and used over the next fifty years for a whole variety of purposes, from refrigeration to air-conditioning and as propellants for hairspray. There was no universal agreement on the dangers posed by these chemicals and production and use continued—except, significantly, where the US Congress decided to ban some non-essential uses. This meant that the US chemical industry found itself under a costly obligation to find alternatives. As evidence on the problem began to mount, UNEP convened an international conference in Vienna. It produced a 'framework convention' agreeing that international action might be required and that the parties should continue to communicate and develop and exchange scientific findings. These proved to be very persuasive, particularly with the added public impetus provided by the dramatic discovery of the Antarctic 'ozone hole'.

Within two years the parties agreed to a Protocol under which the production and trading of CFCs and other ozone-depleting substances would be progressively phased out. The developed countries achieved this for CFCs by 1996 and Meetings of the Parties (MoP) have continued to work on the elimination of other substances since that time. There was some initial resistance from European chemical producers, but the US side had a real incentive to ensure international agreement because otherwise its chemical industry would remain at a commercial disadvantage. The other problem faced by the negotiators involved developing countries, which themselves were manufacturing CFC products. They were compensated by a fund, set up in 1990, to finance the provision of alternative non-CFC technologies for the developing world.

The damage to the ozone layer will not be repaired until the latter part of the twenty-first century, given the long atmospheric lifetimes of the chemicals involved. However, human behaviour has been significantly altered to the extent that the scientific subsidiary body of the Montreal Protocol has been able to report a measurable reduction in the atmospheric concentration of CFCs.

## Climate change

Unlike the ozone layer problem, climate change and the enhanced greenhouse effect had long been debated among scientists, but only in the late 1980s did sufficient international consensus emerge to stimulate action. There were still serious disagreements over the likelihood that human-induced changes in mean temperatures were altering the global climate system. The greenhouse effect is essential to life on earth. Greenhouse gases (GHGs) in the atmosphere insulate the earth's surface by trapping solar radiation (see Fig. 22.2). Before the Industrial Revolution, carbon dioxide concentrations in the atmosphere were around 280 parts per million, and have since grown continuously (to a 2011 figure of 391 ppm) due to burning of fossil fuels and reductions in some of the 'sinks' for carbon dioxide—notably forests. Methane emissions have also risen with the growth of agriculture (IPCC 2007: 11).

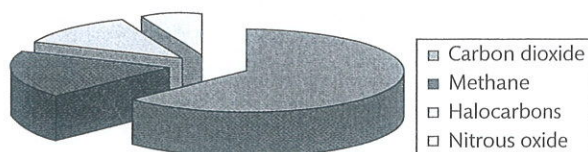


Figure 22.2 Greenhouse gas contributions to global warming  
Source: IPCC 2007, 'Radiative Forcing Components': 16.

The best predictions of the IPCC are that, if nothing is done to curb intensive fossil fuel emissions, there will be a likely rise in mean temperatures of the order of 2.4–6.4°C by 2099.

The exact consequences of this are difficult to predict on the basis of current climate modelling, but sea level rises and turbulent weather are generally expected. According to international consensus, the avoidance of dangerous climate change requires that global mean temperatures should not increase beyond 2°C. (That equates to keeping atmospheric CO<sub>2</sub> concentrations below 550 ppm.) In the first decade of the twenty-first century, unusual weather patterns, storm events, and the melting of polar ice sheets have added a dimension of public concern to the fears expressed by the scientific community.

Climate change is really not a 'normal' international environmental problem—it threatens huge changes in living conditions and challenges existing patterns of energy use and security. There is almost no dimension of international relations that it does not actually or potentially affect, and it has already become the subject of 'high politics', discussed at G8 summits and in high-level meetings between political leaders, although its urgency has been obscured by the persistent problems of the global economy.

### Box 22.6 The Intergovernmental Panel on Climate Change

Set up in 1988 under the auspices of the World Meteorological Organization (WMO) and UNEP, the Intergovernmental Panel on Climate Change (IPCC) brings together the majority of the world's climate change scientists in three working groups: on climate science, impacts, and economic and social dimensions. They have produced assessment reports in 1990, 1995, and 2001, which are regarded as the authoritative scientific statements on climate change. The reports are carefully and cautiously drafted with the involvement of government representatives, and represent a consensus view.

The Fourth Assessment Report, published in February 2007, concluded that 'warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global sea level' (IPCC 2007: 4). Most of the temperature increase 'is very likely due to the observed increase in anthropogenic greenhouse gas concentrations' (IPCC 2007: 8, original italics). The Fifth IPCC report will be completed in 2013–14.

To understand the magnitude of the climate problem, a comparison may be drawn with the stratospheric ozone issue discussed in 'The functions of international environmental cooperation'. There are some similarities. CFCs (chlorofluorocarbons) are in themselves greenhouse gases and the international legal texts on climate change make it clear that controlling them is the responsibility of the Montreal Protocol. Also, the experience with stratospheric ozone and other recent conventions has clearly influenced efforts to build a climate change regime based on a framework convention followed by a protocol.

The 1992 UN Framework Convention on Climate Change (UNFCCC) envisaged the reduction of greenhouse gas emissions and their removal by sinks, hoping that a start could be made by including a commitment from the developed nations to cut their emissions back to 1990 levels by 2000. In a US election year this proved to be impossible, and the parties had to be content with a non-binding declaration that an attempt would be made. There was, however, a binding commitment for parties to draw up national inventories of sources and sinks. As this included the developing nations, many of whom were ill-equipped to fulfil this obligation, there was also funding for capacity building. The Convention also locked the parties into holding a continuing series of annual conferences—the CoPs—to consider possible actions and review the adequacy of existing

commitments, supported by regular inter-sessional meetings of the subsidiary scientific and implementation bodies and working groups. By the second CoP in Kyoto in 1997, the parties agreed a 'control' measure—the Kyoto Protocol, involving emissions reductions by developed countries, facilitated by 'flexibility mechanisms' (see Box 22.7).

The problem faced by the framers of the Kyoto Protocol was vastly more complex and demanding than that which their counterparts at Montreal had confronted so successfully in 1987. Instead of controlling a single set of industrial gases for which substitutes were available, reducing greenhouse gas emissions would involve energy, transport, and agriculture—the fundamentals of life in modern societies. Whether this must involve real sacrifices in living standards and 'impossible' political choices is a tough question for governments, although there are potential economic benefits from cutting emissions through the development of alternative energy technologies.

A second difference from the ozone regime experience was that, despite the unprecedented international scientific effort of the IPCC, there was no scientific consensus of the kind that had promoted agreement on CFCs. Disagreements over the significance of human activities and projections of future change have since narrowed dramatically, but there are still those who have an interest in denying or misrepresenting the science. Mistakes by the IPCC and its contributors have also damaged its authority. There is a further problem in that, even though the effects of climate change are not fully understood, there is enough evidence for some nations to calculate that there might be benefits to them from climatic alterations. Regions of Russia, for example, might become more temperate with rises in mean temperature (although one could equally well argue the

### Box 22.7 The Kyoto Protocol

The 1997 Kyoto Protocol to the UN Framework Convention on Climate Change committed the developed countries to make an average of a 5.2 per cent cut in their greenhouse gas emissions from a 1990 baseline by 2012. Within this, different national targets were negotiated: for example, 7 per cent for the USA and 8 per cent for the European Union (EU). This was to be achieved by emissions trading (the EU set up its own system in 2005) and by complex offsetting arrangements—Joint Implementation and the Clean Development Mechanism (CDM). Unfortunately, by 2012, the only major signatory still committed to the Protocol and its extension was the EU.

extremely damaging effects of melting permafrost in Siberia). One generalization that could be made with certainty is that it is the developing nations, with limited infrastructure and major populations located at sea level, that are most vulnerable. In recognition of this and on the understanding that a certain level of warming is now inevitable, international attention has begun to shift towards the problem of 'adaptation' to the inevitable effects of climate change as well as 'mitigation' of its causes. Once again, the comparative simplicity and uniformity of the stratospheric ozone problem is evident—the effects of ozone depletion were spread across the globe and affected North Europeans as well as those living in the southern hemisphere.

At the heart of the international politics of climate change as a global environmental problem is the structural divide between North and South (see Chs 9 and 29). For the Montreal Protocol there was a solution available at an acceptable price, delivered through the Multilateral Ozone Fund. Once again, climate change is different. One of the most significant principles set out in the UNFCCC was that of 'common but differentiated responsibilities and respective capabilities' (see Case Study 1). That is to say that, while climate change was the 'common concern'

of all, it had been produced as a consequence of the development of the old industrialized nations and it was their responsibility to take the lead in cutting emissions.

The achievement at Kyoto was to bind most of the developed nations to a set of varied emissions cuts. This achieved at least part of the objectives of the European Union, but it was soon seen to be wholly inadequate in terms of the projected scale of the global warming problem. In return, the European Union accepted the US proposal for the Kyoto mechanisms and has since become their enthusiastic champion. When the Bush administration renounced the Kyoto Protocol in 2001, much of the burden of ensuring that Kyoto eventually entered into force fell upon the EU—and tested the diplomatic capabilities of this new type of international actor and its component member states. The EU also pioneered the world's first international emissions trading system, both to achieve the EU's Kyoto target of an 8 per cent reduction in emissions by 2012 and to encourage other countries to join the scheme.

The climate regime has been afflicted by the 'free rider' problem. If some countries join together and agree to make cuts that are costly, then others who do not can enjoy the environmental benefits of such action

### Case Study 1 Common but differentiated responsibilities?



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A key principle of the climate change regime, written into the 1992 UNFCCC, was the notion of 'common but differentiated responsibilities and respective capabilities'. This meant that although all nations had to accept responsibility for the world's changing climate, it was developed (Annex 1) nations that were immediately responsible because they had benefited from the industrialization which was generally regarded as the source of the excess carbon dioxide emissions that had caused mean temperature increases (refer to Fig. 22.1).

In the 1990s, the USA emitted around 25 per cent of the global total but had only 4.5 per cent of global population. Chinese figures were 14 per cent but with over 20 per cent of the world's population, while the thirty-five least-developed nations emitted under 1 per cent. Under the Kyoto Protocol the developed countries were expected to make emissions cuts. However, by 2004 it was clear that an effective post-2012 regime would have to involve the fast-growing economies of the South because their 'respective capabilities' had changed. In terms of current CO<sub>2</sub> emissions in 2011, six countries were responsible for over 70 per cent of the world total: China 29 per cent, US 16 per cent, EU 11 per cent, India 6 per cent, Russia 5 per cent, and Japan 4 per cent.

Finding a new basis for an equitable sharing of necessary emissions reductions is fraught with problems: (1) Because GHGs have long and variable atmospheric lifetimes, from thirty up to at least a hundred years, past emissions must also be taken into account. Thus developing countries can argue that most of the allowable 'carbon space' has already been taken up by the historic emissions of the old industrialized economies and that the latter should, therefore, continue to take the lead. (2) Per capita emissions still vary widely between Northern and Southern economies. Treating them in the same way cannot be either just or politically acceptable. (3) A major part of current Chinese emissions are the direct result of the transfer of production of goods from the US and Europe. Who, therefore, bears the responsibility?

without paying. Thus, proceeding without the USA has been very difficult, not only because it produces around one-quarter of global carbon dioxide emissions, but also because its failure to be involved affects the willingness of others to participate, and particularly the fast-developing economies of the South.

In 2007, at the Bali CoP, the problem of US participation was addressed by a 'road map' in which parallel negotiations were set up on the future of the Convention and the Protocol, with the USA absent from the latter. The intention was to achieve a new agreement by the 2009 Copenhagen CoP, and the EU and other developed countries made pledges of future emissions reductions. Hopes were raised by the arrival of President Obama and his commitment to climate legislation in the USA, although not to the Kyoto Protocol. The Copenhagen experience revealed the extent of international structural change reflected in the emergence of the BASIC group of Brazil, South Africa, China, and India as key players in climate diplomacy. They, along with other developing countries and AOSIS (see Case Study 2), continued to demand the retention of Kyoto and substantial development aid to assist with mitigation and adaptation. At the same time developed countries backed away from further commitment to Kyoto and the stalemate was reflected in a weak 'Copenhagen Accord', which was very far from a new comprehensive and binding climate agreement. China and India offered more efficient use of fossil fuels but not

actual reductions in their projected emissions. Two years later, at Durban in 2011, some progress was made with an agreement to conclude a new climate agreement by 2015. This was achieved by the EU in collaboration with a group of 'progressive' and least-developed countries and AOSIS. While the EU would continue with a new phase of Kyoto, the other major emitters, including the BASICs, agreed to negotiate on reducing their emissions. It appeared that the strict division between Annex 1 countries (see Case Study 1) and the rest had been overcome, but the relative lack of progress over twenty years of the UNFCCC's existence and the exigencies of the continuing global economic downturn did not provide grounds for optimism. Meanwhile the scientific findings continue to stress the accelerating gravity of the climate problem.

#### Key Points

- Climate change, because of its all-embracing nature and its roots in essential human activities, poses an enormous challenge for international cooperation.
- A limited start was made with the Kyoto regime, but this was undermined by the absence of the USA. Although the 2009 Copenhagen Conference was a disappointment to climate activists, the 2011 Durban Platform held out the possibility that North-South differences might be resolved in a new comprehensive climate agreement.

#### Case Study 2 The Alliance of Small Island States (AOSIS)



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There are a number of key coalitions that operate in climate diplomacy, including the Umbrella Group of non-EU developed countries, the Environmental Integrity Group, which includes Switzerland, South Korea, and Mexico, and the Group of 77/China, which has long attempted to represent the South

in global negotiations. Because of the widening differences between its members, the G77/China often fractures into the BASIC countries, the fossil fuel exporters, less-developed mainly African countries, and AOSIS. The Alliance has played a disproportionately large role. Set up in 1990, its forty-four members may only represent about 5 per cent of world population but they are driven by an awareness that national survival is at stake. For members such as Nauru, Tuvalu, or Vanuatu, the sea level rise associated with climate change threatens inundation within the foreseeable future. AOSIS is an 'ad hoc lobby and negotiating voice' coordinated through the UN missions of its members. It was influential in the initial decision to set up the Kyoto Protocol and has agitated consistently for a 1.5°C rather than a 2°C threshold plus compensatory arrangements for loss and damage caused by climate change. After the Copenhagen CoP in 2009 AOSIS was involved with the EU, Australia, and a range of other progressive and less-developed countries in setting up the Cartagena Dialogue. This provided a diplomatic basis for the Durban Platform agreed in 2011.

### The environment and International Relations theory

The neglect of environmental issues in traditional and realist IR theorizing is exemplified in Hans J. Morgenthau's famous text, *Politics among Nations* (1955), which mentions the natural environment only as a fixed contextual factor or a constituent of

reproduces relationships that are profoundly damaging to the environment. The global spread of neo-liberal policies accelerates those features of globalization—consumerism, the relocation of production to the south and the thoughtless squandering

Mega Lecture

thinking about security, defined in terms of collective violence and attacks on the state (Homer-Dixon 1991, 1994). A more intriguing question is whether we should now redefine the idea of security to encompass environmental threats as well as those stemming from terrorism and war (see Ch.15). The UK Chief Scientist once did this by arguing that climate change represented a more significant threat than terrorism (King 2004). As the public becomes more sharply aware of the full magnitude of the climate problem, political discourse begins to 'securitize' (Buzan, Wæver, and de Wilde 1997) the environment—that is, to characterize the environment as a security problem. Because governments usually prioritize security matters, people wishing to mobilize political attention and resources, and encourage potentially painful societal adaptation, will be tempted to stretch established definitions of security.

#### Key Points

- The environment has been a growth area for IR scholars interested in identifying the conditions under which effective international cooperation can emerge.
- Scholars differ in the importance that they attach to various kinds of explanatory factors in their analyses of international environmental regime-building activities—crude calculations of the power and interests of key actors such as states, cognitive factors such as shared scientific knowledge, the impact of non-governmental actors, and even the extent to which the system of states is itself part of the problem.
- IR scholars are also interested in the extent to which the environment in general and particular environmental problems are now being seen as security issues in academic, political, and popular discourse, and whether this securitization of the environment is something to be welcomed.

#### Conclusion

This chapter has shown, briefly, how environmental issues have moved from the margins to an increasingly central place on the international agenda. Climate change is now widely perceived to be at least the equal of any other issue and arguably the most important faced by humankind. The rise to prominence of environmental issues is intimately associated with globalization due to the strain that this places on the earth's carrying capacity in terms of consumption levels, resource depletion, and rising greenhouse gas emissions. Globalization has also facilitated the growth of transnational green politics and interventions by NGOs to raise public awareness, influence international conferences, and even monitor the implementation of agreements by states.

At every stage, two distinctive aspects of international environmental politics have played a central role. The first is the complex relationship between scientific understanding of the biosphere, politics, and policy, as exemplified by the interplay between the IPCC and the actions of governments building the climate regime. The second is the connection between environmental

shifting meanings given to the concept of sustainable development and whose acknowledgement has been a precondition for international action on a whole range of environmental issues. Nowhere is this more evident than in debates about the future direction of the climate regime.

The international response to environmental change has been in the form of attempts to arrange global environmental governance through extensive cooperation between governments. This chapter has attempted to provide some insight into the range and functions of such regime-creating activities, which provide a basis on which the international community is attempting to grapple with the climate problem. The academic community has generally followed this enterprise by concentrating on the question of how regimes may be formed and sustained. More critical theorists will take a different view of the meaning of international cooperation (see Chs 9 and 11). Furthermore, the challenges posed to international theory by the global environmental predicament will undoubtedly involve the need to think through the connections between security, di-