

global warming (UN Climate Change Convention)

CONVENTION)), but as the conflict over global warming is essentially a conflict over both energy-use and the pattern of industrialization, reaching agreement has proved difficult. In particular, the ORGANIZATION OF PETROLEUM EXPORTING COUNTRIES (OPEC) and the United States have continued to emphasize the scientific uncertainty over the IPCC's findings to legitimize their continued reliance on fossil fuels.

In fact, global warming requires a fundamental change in relations between developed and developing countries, involving TECHNOLOGY TRANSFER, widespread lifestyle changes in the industrialized countries and challenges to the existing assumptions within CAPITALISM that energy-use and economic growth are inextricably linked.

See also:

environmental security; sustainable development

Further reading

Houghton, J. *et al.* (eds) (1990) *Climate Change: The IPCC Scientific Assessment*, Cambridge: Cambridge University Press. Accessible introduction to the science of global warming, covering both its predicted effects and suggested solutions.

Paterson, M. (1996) *Global Warming and Global Politics*, London: Routledge. Excellent text finding that a modified form of historical materialism provides the most compelling account of global warming.

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Responding to the potential dangers of human interference with the global climate system, the international community concluded the United Nations Framework Convention on Climate Change (FCCC) in 1992 and strengthened its

obligations with the Kyoto Protocol in 1997. Despite these achievements, progress on decisively curbing the potential threats posed by climate change has been limited and crucial aspects of the Kyoto Protocol are in need of further clarification.

Climate challenge

The *natural* greenhouse effect permits human survival on planet Earth. Human interference with the climate system by way of anthropogenic emissions of greenhouse gases (GHGs), mainly carbon dioxide, methane, nitrous oxides and CHLOROFLUOROCARBONS (CFCs) result in the *enhanced* greenhouse effect which may alter the natural climate pattern. Inquiries into the causes and effects of climate change have been undertaken by the Intergovernmental Panel on Climate Change (IPCC) which has been created by the UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP) and the World Meteorological Organization (WMO). In their Second Assessment Report, IPCC concludes that 'the balance of the evidence suggests that there is a discernible human influence on global climate' (IPCC, 1995).

The effects of climate change will vary greatly across the regions of the world, with some regions facing adverse effects while others may benefit. Fears of increasing sea-levels (for low-lying countries), the spread of malaria or other diseases, more pronounced dry periods in already arid areas, enhanced river floods and the reversal of ocean currents, led the international community to consider an international response to climate change.

The UN Framework Convention (1992) and the Kyoto Protocol (1997)

Following a series of scientific and governmentally organized conferences between 1985 and 1990, the United Nations General Assembly decided in 1990 to create an Intergovernmental Negotiating Committee for the development of a climate convention – to be open for signature on the occasion of the 1992 UN Conference on Environment and Development.

The FCCC entered into force on 21 April 1994 and has been ratified by 186 countries (as of 7 September 2000). Its major objective is to 'prevent dangerous anthropogenic interference with the climate system' (UNFCCC, 1994: Article 2) while acknowledging the preferences of developing countries for economic and sustainable development. It also encourages industrialized countries to return their GHG emission to 1990 levels by the year 2000 (UNFCCC, 1994: Article 4 (2)) while developing countries mostly have to abide by reporting requirements.

In order to reach the objective of the FCCC, most scientists suggest that substantial emission reductions of GHGs are required. Following three years of intensive negotiations, the third conference of the parties (COP-3) concluded the 'Kyoto Protocol to the United Nations Framework Convention on Climate Change' in 1997. Its main provision asks industrialized countries to reduce their weighted yearly GHGs by 5.2 per cent in the period 2008–12 relative to 1990 levels. A variety of market-oriented instruments have been created to reach such emission reductions. The Kyoto Protocol (1997), signed by eighty-four countries (as of 27 November 2000), left substantial 'unfinished business' and COP-4 at Buenos Aires in 1998 only agreed on a work-plan to resolve such matters – for example, the rules governing the operation of the market-oriented mechanisms – until the year 2000. This deadline was clearly missed and the Kyoto Protocol has not yet entered into force.

Major controversies

Following the second assessment report of the IPCC in 1995, it has been mostly accepted that humans interfere with the climate system. Such agreement has yet to be reached on ways to conclusively limit the expected adverse effects of climate change. Several debates impinge on each other. Three controversies receive major attention, namely (1) the obligations of developing countries, (2) the role of market-oriented instruments for emission reductions and (3) the role of equity or fairness.

First, the United States and other countries would like developing countries to commit to emission reductions, for example, relative to a projected emission path. By asking for 'voluntary commitments' or 'meaningful participation' by major developing countries, the United States responds to domestic pressures related to the ratification of the Kyoto Protocol. By contrast, developing countries have insisted that their overriding priority is economic development and eradication of poverty. Furthermore, they stress the historical obligations which industrialized countries have for their emissions, previously released and partially still active due to the varying residence times of GHGs. The matter is complicated by the expectation that the group of present-day developing countries will account for more than 50 per cent of GHG releases by the middle of the twenty-first century. By the fourth conference of the parties (COP-4) at Buenos Aires in 1998, differentiation among developing countries surfaced: Argentina and Kazakhstan are exploring ways to assume obligations under the climate-change regime which include emissions reductions, either in absolute terms or relative to the expected emission path. These moves may have catalytic effects on other countries currently resisting such obligations. In order to avoid compensating the emissions reductions of some countries by increases in others, it will be necessary to cover the emission policies of all major GHG emitters in the longer term.

Second, some observers suggest that the climate-change regime has turned into an economic regime. This may be due to the attention given to the market-oriented (or 'Kyoto') mechanisms created by the Kyoto Protocol. These include the creation of bubbles (countries 'unite' for the purpose of honouring a joint emission goal), emissions trading among industrialized countries (one country sells surplus emission permits to another in exchange for, for example, financial assets), undertaking joint implementation (JI; industrialized countries invest in GHG reductions in another industrialized country and receive 'credits' toward their national emission target)

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and the clean-development mechanism (CDM; industrialized countries invest in GHG reductions in a developing country and receive 'credits'). It should be noted that CDM is JI with a sustainable-development component and a surcharge to be used for adaptation measures in developing countries.

The United States and other market-oriented countries, as the primary force behind the Kyoto mechanisms, wish to minimize abatement costs, whereas the EUROPEAN UNION (EU) wants to limit the use of such instruments, in particular in order to limit the amount of trade in otherwise unused emission rights. In combination, the Kyoto mechanisms may create a market in carbon permits (emissions in other GHGs can be easily converted into carbon equivalents) and lower global abatement costs – an innovation in the history of global environmental policy with no present-day counterpart in other global environmental agreements. A range of developing countries have shown increasing interest in the development of the CDM and COP-4 decided to prioritize it over other Kyoto mechanisms. The development of the rules governing the precise operation of the Kyoto mechanisms was scheduled to be completed by the year 2000 but ran into serious difficulties at the Hague Conference. Nearly all relevant specialized agencies within the UNITED NATIONS (UN) system have entered the discussion; for example, the WORLD BANK created, inter alia, the National Strategy Studies Program and the Global Carbon Initiative.

Third, equity or JUSTICE serves as a major underlying theme of the climate negotiations. At the core of the debate between developing and industrialized countries is the allocation of the rights to emit GHGs. Most often voiced has been the per capita distribution which would reflect the equal rights of all humans and benefits countries with large populations. As industrialized countries currently often emit large multiples of developing country per capita emissions, 'contraction and convergence' may offer a way to achieve equitable distribution of pollution rights. Distributing emission rights universally would also imply

obligations for developing countries in terms of maximum allowable emissions, as discussed above.

Preventing dangerous interference with the climate system remains the overarching goal of the FCCC. To operationalize and achieve this goal remains a major challenge for scientists and policy-makers. Present knowledge suggests that current obligations under the FCCC and Kyoto Protocol will be insufficient to achieve this goal. To create a regime which reduces environmental vulnerability while being cost-effective and acceptable to major developing countries on equity grounds will be the challenge for global climate diplomacy.

Further reading

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- Paterson, M. (1996) *Global Warming and Global Politics*, London: Routledge. Assessment of global climate policy from a variety of international relations perspectives.
- Sprinz, D.F. (1998) 'Internationale Klimapolitik' (International Climate Policy), in *Die Friedens-Warte – Journal of International Peace and Organization* 73, 1: 25–44. Summary of the state of climate change policy.
- Sprinz, D.F. and Luterbacher, U. (eds) (1996) *International Relations and Global Climate Change*, 2nd edn, Potsdam: Potsdam Institute for Climate Impact Research (PIK). In-depth review of international relations theories and methods on global climate-change policy. Can be found at http://www.pik-potsdam.de/dept/soc/e/reports/pr21_1.htm.
- UNFCCC (1994) <http://www.unfccc.int>.

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