

caring for climate

a guide to the climate change convention and the kyoto protocol



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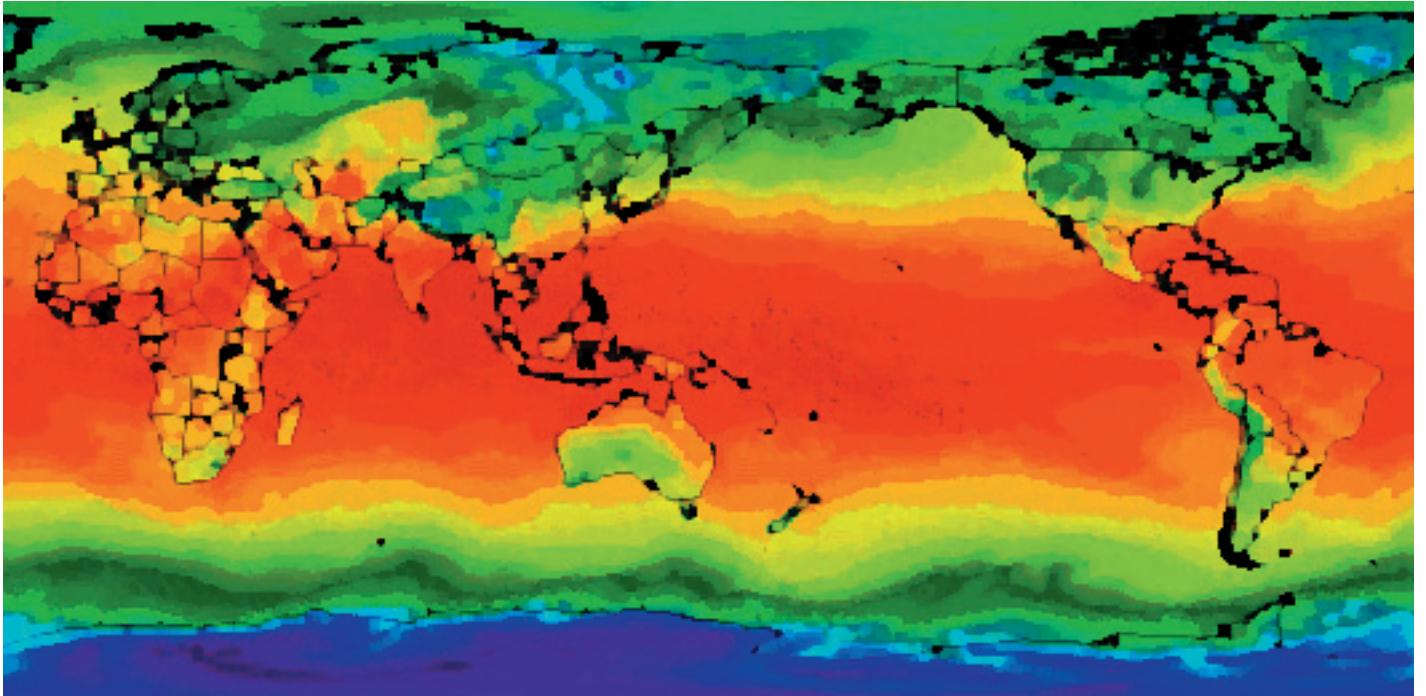
A fold-out key to acronyms and abbreviations used
in this guide can be found inside the back cover.



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"The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities."

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Foreword

Although climate change has happened throughout the earth's history, it has never before occurred at the current pace, nor has it ever occurred because of human interference. Climate change is a highly complex problem, which has the potential to impact negatively on every sphere of life, if left unabated. Yet the interchanges between the earth's climate and human induced greenhouse gas emissions do not constitute everybody's main area of interest. This is not surprising since addressing climate change translates into dealing with deeply sensitive scientific, political and economic concepts and perceptions. But the urgent necessity of understanding and addressing climate change is increasingly driven home by the phenomenon's manifestation in extreme weather events such as floods and droughts. Climate change and its devastating effects thus need continued urgent attention, carefully backed up by a broad understanding of what the mechanisms for addressing it entail, by political will and scientific findings.

The United Nations Framework Convention on Climate Change entered into force in 1994. The Kyoto Protocol, which sets out more specific, binding commitments, followed in 1997. The Convention enjoys near universal membership – testimony to the political will that governments of the world show for tackling climate change. The Convention is being implemented through an intergovernmental process, in other words, it is a platform on which countries can join forces to stabilize the global climate. The entry into force of the Kyoto Protocol is expected at any moment.

In the 11 years since the Convention's entry into force, negotiations, especially on the Kyoto Protocol, were held in a variety of locations around the globe, from Buenos Aires to Marrakech. The rulebooks needed to make both the Convention and the Protocol work, are now largely in place and the focus will increasingly be on implementation, while keeping an eye open for what is needed in the future.

This guide is an attempt to provide an overview of the Convention's evolution, as well as to explain both agreements in plain language. It also provides an overview of the commitments that countries have taken on.

Given the increasing focus on implementation, it is all the more important that our international agreements are understood by the citizens of the world. Only with your support can we translate these agreements into concrete action, implemented on the international, national and local levels, to effectively prevent and counteract the effects resulting from a destabilized global climate.



Joke Waller-Hunter
Executive Secretary, UNFCCC



Introduction

The world's climate has always varied naturally. Scientists believe, however, that a new kind of climate change is now under way. Its impacts on people and ecosystems are to be drastic. Levels of carbon dioxide and other 'greenhouse gases' in the atmosphere have risen steeply since the industrial revolution. Concentrations have increased mainly because of the use of fossil fuels, deforestation and other human activities, spurred on by economic and population growth. Like a blanket around the planet, greenhouse gases stop energy escaping from the Earth's surface and atmosphere (see opposite). If levels rise too high, excessive warming can distort natural patterns of climate.

The Intergovernmental Panel on Climate Change (IPCC) confirmed in its Third Assessment Report that there was "new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities". Although uncertainties

in the process of projecting future trends create wide margins for error in the estimates, the IPCC predicted a rise of 1.4 to 5.8 °C in global mean surface temperatures over the next 100 years. The impact of warming, even at the lower end of this range is likely to be dramatic (see table below). The impacts on humans will be unavoidable and – in places – extreme.

People in some areas may benefit from climate change. But many more will struggle to cope. Developing countries will suffer more than others as their lack of resources makes them specially vulnerable to adversity or emergencies on any major scale. Yet people in developing countries have created only a small proportion of greenhouse gas emissions.

Source: (based on) the IPCC 2001. Third Assessment Report

Examples of climate variability and extreme climate events and their impacts

Projected Changes	Projected Impacts
Higher maximum temperatures, more hot days and heat waves over nearly all land areas Prognosis: very likely	<ul style="list-style-type: none"> ▲ Incidence of death and serious illness in older people and urban poor ▲ Heat stress in livestock and wildlife ▲ Risk of damage to a number of crops ▲ Electric cooling demand ▼ Energy supply reliability
Higher minimum temperatures, and fewer cold days, frost days, and cold waves over nearly all land areas Prognosis: very likely	<ul style="list-style-type: none"> ▼ Cold-related human morbidity and mortality ▼ Risk of damage to a number of crops ■ Range and activity of some pests and disease vectors ▼ Heating energy demand
More intense precipitation events Prognosis: very likely, over many areas	<ul style="list-style-type: none"> ▲ Flood, landslide and avalanche damage ▲ Soil erosion ▲ Flood run off could increase recharge of some flood plain aquifers ▲ Pressure on government and private flood insurance systems and disaster relief
Increased summer drying over most mid-latitude continental interiors and associated risk of drought Prognosis: likely	<ul style="list-style-type: none"> ▼ Crop yields ▲ Damage to building foundations caused by ground shrinkage ▲ Risk of forest fire ▼ Water resource quantity and quality
Increase in tropical cyclone peak wind intensities, and mean and peak precipitation intensities Prognosis: likely, over some areas	<ul style="list-style-type: none"> ▲ Risks to human life, risk of infectious disease epidemics ▲ Coastal erosion and damage to coastal buildings and infrastructure ▲ Damage to coastal ecosystems such as coral reefs and mangroves
Intensified droughts and floods associated with El Niño events in many regions Prognosis: likely	<ul style="list-style-type: none"> ▼ Agricultural and rangeland productivity in regions prone to drought and flood ▼ Hydro-power potential in drought-prone regions
Increased variability of Asian summer monsoon precipitation Prognosis: likely	<ul style="list-style-type: none"> ▲ Flood and drought magnitude and damage in temperate and tropical Asia
Increased intensity of mid-latitude storms. Prognosis: little agreement between current models	<ul style="list-style-type: none"> ▲ Risks to human life and health ▲ Property and infrastructure losses ▲ Damage to coastal ecosystems

Key to symbols
 ▲ Increased
 ■ Extended
 ▼ Decreased

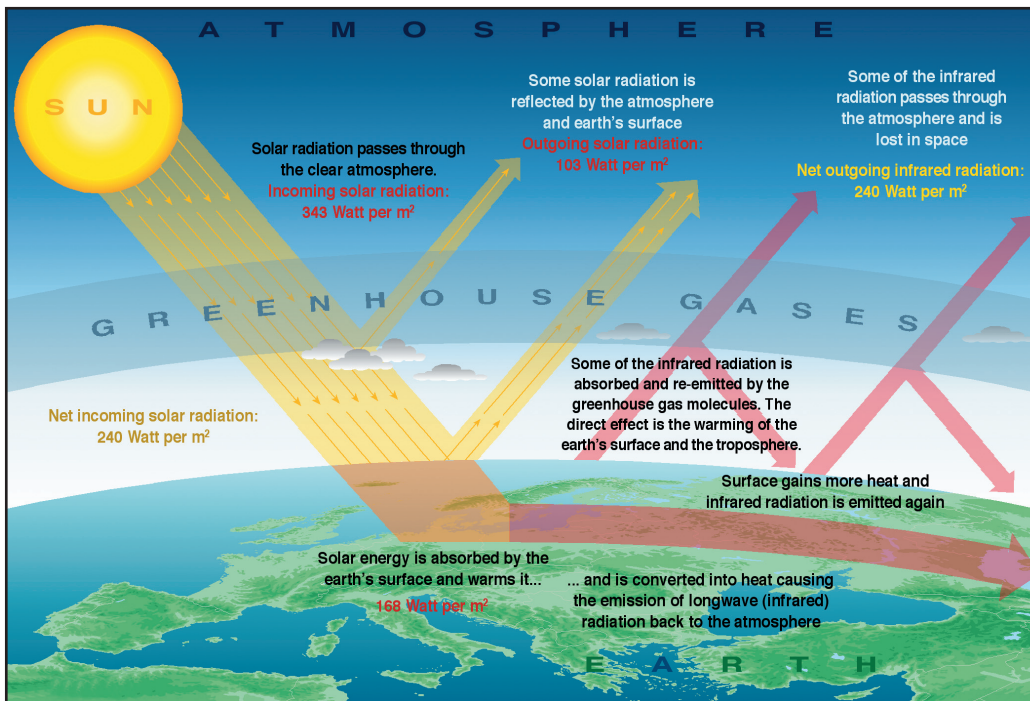
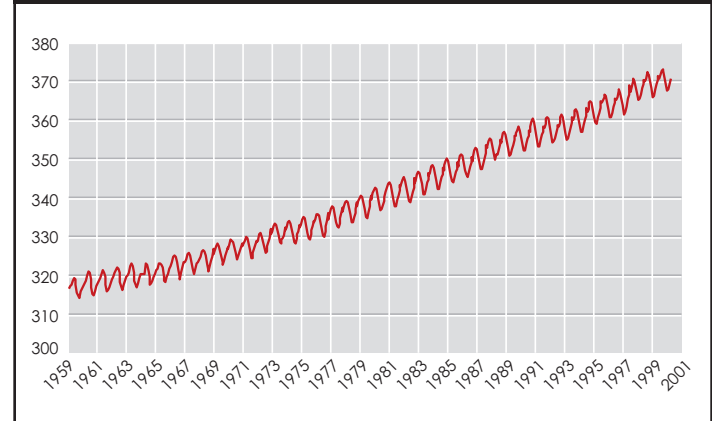
The main greenhouse gases

The Convention concerns all greenhouse gases not covered by the 1987 Montreal Protocol to the United Nations Convention on Protection of the Ozone Layer. The focus of the Kyoto Protocol, however, is on the following six:

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur hexafluoride (SF₆)

The first three are estimated to account for 50, 18 and 6 per cent, respectively, of the overall global warming effect arising from human activities. The HFCs and PFCs are used as replacements for ozone-depleting substances such as chlorofluorocarbons (CFCs) being phased out under the Montreal Protocol (see page 18).

Carbon dioxide in the atmosphere



▲ Records from Mauna Loa, Hawaii (in parts per million by volume) show how CO₂ concentrations in the atmosphere have increased since accurate records began. Source: Keeling and Whorf 2001 in Global Environment Outlook 3 (UNEP/Earthscan Publications 2002)

◀ Sources: Okanagan University College in Canada, Department of Geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the Intergovernmental Panel on Climate Change, UNEP and WMO, Cambridge University Press, 1996. GRID Arendal.

Background

Early history

Evidence of human interference with the climate first emerged in 1979 at the First World Climate Conference (see timelines, below). As public concern over environmental issues continued to increase during the 1980s, governments grew progressively more aware of climate issues. In 1988 the United Nations General Assembly adopted resolution 43/53, proposed by the Government of Malta, urging the 'Protection of global climate for present and future generations of mankind.'

During the same year the governing bodies of the World Meteorological Organization and the United Nations Environment Programme created a new body, the Intergovernmental Panel on Climate Change, to marshal and assess scientific information on the subject. In 1990 the IPCC issued its First Assessment Report, which confirmed that the threat of climate change was real. The Second World Climate Conference held in Geneva later that year called for the creation of a global treaty. The General Assembly responded by passing resolution 45/212, formally launching negotiations on a convention on climate change, to be conducted by an Intergovernmental Negotiating Committee (INC).

The Convention takes off

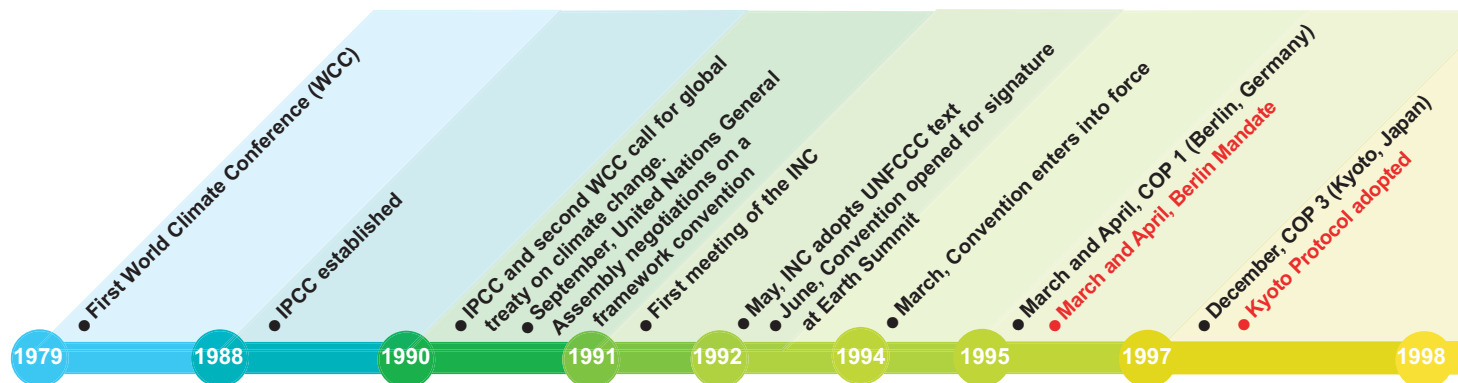
The INC first met in February 1991 and its government representatives adopted the United Nations Framework Convention on Climate Change, after just 15 months of negotiations, on 9 May 1992. At the Rio de Janeiro United Nations Conference on Environment and Development (or Earth Summit) of June 1992, the new Convention was opened for signature. It entered into force on 21 March 1994. Eight years later, the Convention had been joined by 188 states and the European Community. This almost worldwide membership makes the Convention one of the most universally supported of all international environmental agreements. For a full checklist see pages 13 and 14.

Since it entered into force, Parties to the Convention – those countries that have ratified, accepted, approved, or acceded to the treaty – have met annually at the Conference of the Parties, known as the COP. They meet to foster and monitor its implementation and continue talks on how best to tackle climate change. Successive decisions taken by the COP at its sessions now make up a detailed set of rules for practical and effective implementation of the Convention.

Even as they adopted the Convention, however, governments knew that its provisions would not be sufficient to tackle climate change. At the first Conference of the Parties (COP 1), held in Berlin in early 1995, a new round of talks was launched to

● Convention Timeline

● Protocol Timeline



discuss firmer, more detailed commitments for industrialized countries, a decision known as the Berlin Mandate.

Birth of the Kyoto Protocol

After two and a half years of intensive negotiations, a substantial extension to the Convention that outlined legally binding commitments was adopted at COP 3 in Kyoto, Japan, in December 1997. This was the Kyoto Protocol. It sketched out basic rules, but did not flesh out details of how they would be applied. It also required a separate, formal process of signature and ratification by national governments before it could enter into force.

A clearer picture of the way the Protocol would operate in practice emerged from a fresh round of negotiations launched in Buenos Aires at COP 4 in November 1998. This round, based on an ambitious work programme (the Buenos Aires Plan of Action), linked negotiations on the Protocol's rules to talks on implementation issues – such as finance and technology transfer – under the umbrella of the Convention. The deadline for negotiations under the Buenos Aires Plan of Action was set as COP 6 at The Hague in the Netherlands in late 2000.

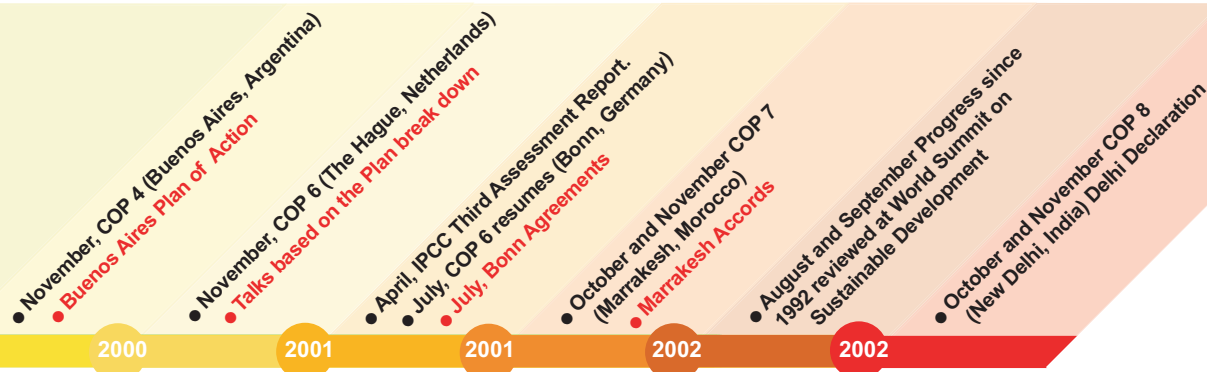
When that time came, however, the complexity of the political issues at stake created deadlock in the negotiations. Talks reconvened at a resumed session of COP 6 in Bonn, Germany, in July 2001. Here, governments struck a political deal – the Bonn Agreements – signing off on controversial aspects of the Buenos

Aires Plan of action. A third report from the IPCC had meanwhile improved the climate for negotiations by offering the most compelling evidence to date of a warming world.

At COP 7, held a few months later in Marrakesh, Morocco, negotiators built on the Bonn Agreements by adopting a comprehensive package of decisions – known as the Marrakesh Accords – containing more detailed rules for the Kyoto Protocol. These decisions also spelt out important advances in the implementation of the Convention and its rulebook, marking the close of a major negotiating cycle.

Looking ahead

At the World Summit for Sustainable Development held in Johannesburg, South Africa, in August and September 2002, the Executive Secretary of the UNFCCC secretariat noted that: "In the Convention's first decade, the centrepiece of global negotiations was to agree on rules for implementation. Our challenge now is to apply those rules and move climate change to the centre of national policy-making and action by business and civil society."



The Convention

The framework for action

The Convention sets an overall framework for intergovernmental efforts to tackle climate change. It establishes an objective and principles (see opposite) and spells out commitments for different groups of countries according to their circumstances and needs. It also provides a set of institutions to enable governments to monitor efforts to implement the Convention and to share insights on how best to pursue the Convention's aims.

Commitments

The Convention divides countries into three main groups according to differing commitments:

ANNEX I Parties include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States. For countries currently listed under Annex I, see box (right).

A requirement that affects only Annex I Parties is that they must adopt climate change policies and measures with the aim of reducing their greenhouse gas emissions to 1990 levels by the year 2000. This provision obliges them to set an example of firm resolve to deal with climate change.

The Convention grants EIT Parties "a certain degree of flexibility" in implementing commitments, on account of recent economic and political upheavals in those countries. Several EIT Parties have exercised this flexibility to select a base year other than 1990 for their specific commitment, to take account of intervening economic changes that led to big cuts in emissions.

ANNEX II Parties consist of the OECD members of Annex I, but not the EIT Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the Convention and to help them adapt to adverse effects of climate change. In addition, they have to "take all practicable steps" to promote the development and

transfer of environmentally friendly technologies to EIT Parties and developing countries. Funding provided by Annex II Parties is channelled mostly through the Convention's financial mechanism. **NON-ANNEX I** Parties – as they are termed for ease of reference

Countries included in Annex I

Australia	Liechtenstein
Austria	Lithuania*
Belarus*	Luxembourg
Belgium	Monaco
Bulgaria*	Netherlands
Canada	New Zealand
Croatia*	Norway
Czech Republic*	Poland*
Denmark	Portugal
Estonia*	Romania*
European Community	Russian Federation*
Finland	Slovakia*
France	Slovenia*
Germany	Spain
Greece	Sweden
Hungary*	Switzerland
Iceland	Turkey
Ireland	Ukraine*
Italy	United Kingdom of Great
Japan	Britain and Northern Ireland
Latvia*	United States of America

See the secretariat web site unfccc.int for a continually updated version.

*Countries with economies in transition (EIT Parties)

– are mostly developing countries (see page 13 for a full list of all Parties to the Convention). Certain groups of developing countries are recognized by the Convention as being specially vulnerable to the adverse impacts of climate change, including countries with low-lying coastal areas and those prone to desertification and drought. Others (such as countries that rely heavily on income from fossil fuel production and commerce) feel more vulnerable to the potential economic impacts of climate change response measures. The Convention emphasizes activities that promise to answer the special needs and concerns of these vulnerable countries, such as investment, insurance and technology-transfer.

The 48 countries classified as least developed countries (LDCs) by the United Nations are given special consideration under the Convention on account of their limited capacity to respond to climate change and adapt to its adverse effects. Parties are urged to take full account of the special situation of LDCs when considering funding and technology-transfer activities.

All Parties to the Convention – those countries that have ratified, accepted, approved, or acceded to it – are subject to general commitments to respond to climate change. They agree to compile an inventory of their greenhouse gas emissions, and submit reports – known as national communications – on actions they are taking to implement the Convention. To focus such actions, they must prepare national programmes containing:

- Climate change mitigation measures
- Provisions for developing and transferring environmentally friendly technologies
- Provisions for sustainably managing carbon 'sinks' (a general term for forests and other ecosystems that can remove more greenhouse gases from the atmosphere than they emit)
- Preparations to adapt to climate change
- Plans to engage in climate research, observation of the global climate system and information exchange
- Plans to promote education, training and public awareness relating to climate change.

Objective and principles

The ultimate objective of the Convention is:

“ . . . to achieve stabilization of atmospheric concentrations of greenhouse gases at levels that would prevent dangerous anthropogenic (human-induced) interference with the climate system . . . ”

Defining what is meant by 'dangerous' involves social and economic considerations as well as scientific judgement. The Convention does, however, state that the level of concentrations should be reached in a time frame that allows ecosystems to adapt naturally, food security to be preserved and economic development to proceed in a sustainable manner. The Convention's principles hinge on:

- **Equity and common but differentiated responsibilities**, which reflect the reality that, although climate change is a global issue and must be tackled as such, industrialized countries have historically contributed most to the problem and have more resources with which to remedy it. Developing countries, for their part, are more vulnerable to adverse effects and their capacity to respond is likely to be lower.
- A **precautionary approach**, or recognition that though many uncertainties surround climate change, waiting for certainty before taking action, or precautionary measures, runs the risk of being too late to avert the worst impacts. The Convention notes that "where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures."
- A recognition that **development and climate change** are interlinked and that patterns of energy consumption, land use and demographic growth are key drivers of both. The Convention sees **sustainable economic growth and development** as essential ingredients of successful policies to tackle climate change. It also calls for policies and measures dealing with climate change to be **cost-effective**, delivering global benefits at the lowest possible cost.

The Convention

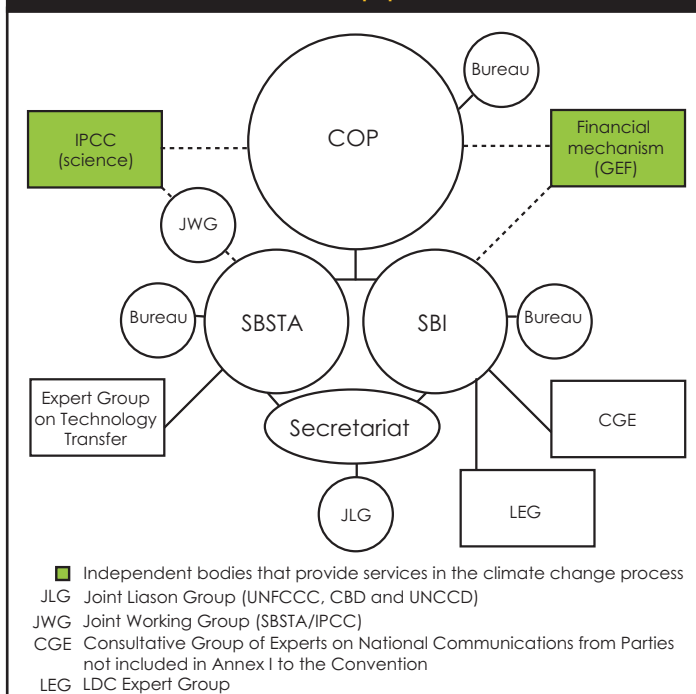
Institutions

The ultimate decision-making body of the Convention is its **Conference of the Parties (COP)**. It meets every year and reviews the implementation of the Convention, adopts decisions to further develop the Convention's rules, and negotiates substantive new commitments. Two subsidiary bodies meet at least twice a year to carry out preparatory work for the COP:

The **Subsidiary Body for Scientific and Technological Advice (SBSTA)** provides advice to the COP on matters of science, technology and methodology, including guidelines for improving standards of national communications and emission inventories.

The **Subsidiary Body for Implementation (SBI)** helps to assess and review the Convention's implementation, for instance by analysing national communications submitted by Parties. It also deals with financial and administrative matters.

Convention and support institutions



The Secretariat

A secretariat staffed by international civil servants supports all institutions involved in the climate change process, particularly the COP, the subsidiary bodies and their Bureaux. Its mandate, as laid out in general terms in Article 8 of the Convention, is to make practical arrangements for the sessions of the Convention bodies, assist Parties in implementing their commitments, compile and disseminate data and information, and confer with other relevant international organizations.

Since 1996 the government of Germany in Bonn has hosted the secretariat. The organizational structure is organized around three clusters:

- **Executive Direction** comprises the functions and staff of the Executive Secretary, the Deputy Executive Secretary and the Secretary of the COP. These three officials are responsible for promoting overall coherence of the secretariat's work and its responsiveness to the needs of the Convention bodies. They also provide advice and support to the President and Bureau of the COP, analyse emerging policy issues, coordinate communications and outreach and oversee support services.
- **Methods, Inventories and Science (MIS)** provides services to the SBSTA, advancing the secretariat's methodological work. It coordinates the development of reporting guidelines, organizes the technical review of emission inventories, and archives inventory data. MIS interacts with international scientific bodies, notably the IPCC and the Global Climate Observing System (GCOS).
- **Implementation (IMP)** provides services to the SBI, including work on guidelines for national communications by Annex I and non-Annex I Parties. It compiles and synthesizes information in national communications and provides support for the in-depth review of communications from Annex I Parties and for the CGE. It also manages liaison with the Global Environment Facility .
- **Sustainable Development (SD)** deals with the integration of climate change concerns into the sustainable development

programmes of non-Annex I Parties. Its agenda includes support for intergovernmental work on the transfer of technology, adaptation strategies (including national adaptation programmes of action for LDCs) and work under Article 6 on education, training and public awareness at the national level.

- **Cooperative Mechanisms (COOP)** supports the implementation of projects under the clean development mechanism and joint implementation of the Kyoto Protocol. COOP also supports the implementation of emissions trading and registry systems under the Protocol and collects and disseminates information on activities implemented jointly under the Convention.
- **Intergovernmental and Conference Affairs (ICA)** is responsible for providing substantive and legal support to the Secretary of the COP and organizing conference services for all sessions of Convention bodies and workshops. ICA liaises with Parties and observers such as representatives of non-governmental organizations, registers all participants and makes funding and travel arrangements for participants from eligible Parties. It also edits and publishes official documents.
- **Administrative Services (AS)** is responsible for the overall operation of the secretariat. AS prepares and manages the programme budget of the secretariat, monitors contributions, develops policies and guidance for the management of financial and human resources, and handles procurement activities. Administrative activities and costs are tracked in the United Nations Integrated Management Information System (IMIS).
- **Information Services (IS)** handles information and communication technology support to Parties at sessions of the Convention bodies and workshops, as well as to the secretariat. It maintains the secretariat's web site and ensures that Parties can access data, information and official documents through the Internet. The Library maintains a comprehensive archive of UNFCCC official documents and has online access to many United Nations and other databases. It arranges for the media to participate in the Convention process and publishes general information for public use about the Convention and related matters.

Allied bodies

Two other bodies, the **Global Environment Facility** and the **Intergovernmental Panel on Climate Change** provide services to the Convention, though they are not formally part of it.

- The GEF currently operates the Convention's financial mechanism, which channels funds to developing countries on a grant or loan basis. It was established through its implementing agencies the World Bank, UNEP and UNDP in 1991 to fund developing country projects that have global environmental benefits, not only in the area of climate change, but also in biodiversity, protection of the ozone layer and international waters. The COP provides regular policy guidance to the GEF on its climate change policies, programme priorities and eligibility criteria for funding, while the GEF reports on its climate change work to the COP every year.
- The IPCC is a crucial source of information on climate change. At five-year intervals it publishes comprehensive progress reports on the state of climate change science, the latest of which (the Third Assessment Report) appeared in 2001. It also prepares Special Reports or Technical Papers on specific issues in response to requests from the COP or SBSTA (see opposite). The Panel's work on methodologies has also played a major part in the process of developing common guidelines for Parties to compile their inventories of greenhouse gases.

"... Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly to developing countries to enable them to implement the provisions of the Convention ..."

From Article 4.5 of the United Nations Framework Convention on Climate Change

The Convention

Partnerships

The Convention's work is interwoven with that of other international organizations that view sustainable development as a prime objective. To make the most of potential synergies and to avoid duplication, areas where agendas are liable to overlap receive special attention.

A Joint Liaison Group was set up in 2001 by the secretariat's of the three so-called 'Rio Conventions' – UNFCCC, CBD (Convention on Biological Diversity) and UNCCD (United Nations Convention to Combat Desertification). It enables them to share insights about their work, identify possible joint activities and anticipate any potential problems. Other relevant institutions that are regularly consulted include the World Meteorological Organization (WMO) and the Ramsar Convention on International Wetlands.

Input may be sought on specifics, for instance from the Secretariat of the Global Climate Observing System (GCOS) of the WMO on research and systematic observation or from UNEP on education, training and public awareness. The SBSTA also works with the bodies of the Montreal Protocol on potential synergies and conflicts between efforts to combat climate change and measures to curb ozone layer depletion, as some ozone-depleting substances and some of their replacements are also greenhouse gases.

In terms of partnerships and synergies at regional level, the secretariat liaises with the secretariat's of other relevant treaty bodies to coordinate efforts. For instance, in relation to Article 6 of the Convention, on education, training and public awareness, most European Parties to the UNFCCC are also Parties to the Aarhus Convention on Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, for which the United Nations Economic Commission for Europe, provides secretariat services.

In the area of public access to information, public participation and international cooperation on these matters, the secretariat also maintains and cultivates contacts with national and international NGOs, trade bodies and others.

Reporting

Central to the intergovernmental process of the COP is the need to share, communicate and respond to information through national communications. They provide the means by which the COP monitors the progress made by Parties in meeting their commitments and in achieving the ultimate objectives of the Convention. For the purposes of transparency, comparability and flexibility in reporting of information, the COP provides the guidelines for Parties to use in reporting information in their national communications.

National communications provide the opportunity for each Party to communicate information on national, and where relevant, regional efforts to implement the Convention based on agreed guidelines. Since 1995, these guidelines have been successively revised and improved in the light of the Parties' experience of putting them to use. For Annex I Parties, guidelines for preparing national communications were last revised in 1999 and those for emissions inventories in 2002, at COP 8. The guidelines for non-Annex I Parties were changed in 2002. The COP uses this information to assess and review the effective implementation of the Convention and assess the overall aggregated effect of steps taken by Parties.

Annex I Parties must report more often and in more detail (see below). For non-Annex I parties, reporting normally depends on receiving funding to cover costs. Non-Annex I Parties are differentiated into two groups comprising the least developed countries (LDCs) and other developing country Parties to the Convention. Initial national communications of non-Annex I Parties are to be presented within three years of the entry into force of the Convention for that Party, or of the availability of financial resources however, the LDC can do so "at their discretion". The frequency of submission of subsequent national communications by all Parties is determined by the COP.

How Annex I Parties report

An initial first national communication was due from each Annex I Party within six months of the entry into force of the Convention for that Party. The second national communication was due on 15 April 1997 (or 15 April 1998 for EIT Parties, for

which the date of entry into force fell a year later) and the third by 30 November 2001. The deadline for the fourth submission is 1 January 2006. The secretariat has now received two national communications from almost all Annex I Parties, except those which ratified the Convention after 1998. Third national communications are still being submitted.

Annex I Parties must also submit an annual inventory of their greenhouse gas emissions and removals to the secretariat by 15 April every year, including data on emissions for 1990 (or another base year applicable for EIT Parties), and for all the years between this base year and the last-but-one year prior to the year of the submission. Inventories due in April 2002, for example, should contain emissions data for the year 2000.

Review procedures

National communications and greenhouse gas inventories from Annex I Parties are subject to in-depth review by teams of independent experts. The aim is to provide a thorough technical assessment of each Party's commitments and steps taken towards their implementation. Teams are selected from a roster of experts nominated by Parties and coordinated by the secretariat. The results of their work are published in reports available on the secretariat web site (unfccc.int). Periodic in-depth reviews of national communications started in 1995. They typically draw on findings from visits to the country concerned as well as desk-based studies.

Starting in 2003, greenhouse gas inventories from all Annex I Parties will be reviewed annually. Technical review of each inventory consists of an initial check, a synthesis and assessment and an individual review. Individual reviews can use different approaches – desk reviews, centralized reviews and in-country visits. At intervals since 1996, the secretariat has prepared compilation and synthesis reports on national communications from Annex I and non-Annex I Parties.

How non-Annex I Parties report

As of the 31 July 2003 105 non-Annex I Parties have now submitted their initial national communications, and this number continues to rise. The frequency of second and subsequent

national communications will be decided by the COP in late 2003. Mexico has already submitted its second communication and some other non-Annex I Parties are also working on theirs. Non-Annex I Parties are not required to submit a separate annual emission inventory, and national communications from non-Annex I Parties are not subject to in-depth reviews.

Funding

Since 1991, about US\$ 1.3 billion have been provided in grants from the GEF Trust Fund for climate change activities in developing countries, of this total only 3% was used to fund national communications of non-Annex I Parties. Another US\$ 6.9 billion was contributed through co-financing from bilateral agencies, recipient countries and the private sector, making a total of US\$ 8.2 billion. As part of the Marrakesh Accords, the COP advised the GEF to expand the scope of activities eligible for funding, such as work on adaptation and capacity-building. The Accords also established two new funds:

- A Special Climate Change Fund to finance projects relating to capacity-building, adaptation, technology transfer, climate change mitigation and economic diversification for countries highly dependent on income from fossil fuels. It will be complementary to other funding mechanisms.
- A Least Developed Countries Fund to support a special work programme to assist LDCs.

Several Annex II Parties have already declared that they will collectively contribute US\$ 410 million a year in extra funding for developing countries by 2005, with this level to be reviewed in 2008. These funds will be managed by the GEF as the entity operating of the Convention's financial mechanism.

In addition, the Marrakesh Accords established an Adaptation Fund which will be managed by the GEF and funded not only by the adaptation levy on CDM projects (see page 21), but also by additional contributions from Annex I Parties.

The Adaptation Fund will finance practical adaptation projects and programmes in developing countries, and also support capacity-building activities. Parties to the Protocol have to report yearly on their contributions to the fund and the COP/MOP will review these reports.

The Convention

Developing country responses

How should the Convention deal with the vulnerability of developing countries to the impacts of climate change and of response measures? A series of workshops on this question bore fruit in an agreement at COP 7 that included the introduction of new funding provisions (see page 10) and now forms part of the Marrakesh Accords. Other decisions highlight specific concerns of the least developed countries. The Marrakesh Accords call on non-Annex I Parties to declare their needs and priorities, and on Annex II Parties to report on activities they set up to support them.

In respect of vulnerability to the impacts of climate change, these activities could include:

- Data collection and research into (and monitoring of) climate change impacts
- Assessment of vulnerability and of adaptation options
- Capacity-building
- Improving early warning systems for rapid response to extreme weather events
- Starting to implement adaptation measures where appropriate.

In terms of vulnerability to response measures, the range of activities could include:

- Promoting investment for economic diversification
- Developing and transferring more climate-friendly technologies, including non-energy uses of fossil fuels, advanced fossil fuel technologies and carbon capture or storage
- Expanding the use of climate-friendly energy sources such as natural gas or biofuels
- Capacity-building.

The Marrakesh Accords set out a longer-term programme of analytical work on the impacts of climate change and on response measures, involving a series of regional workshops and workshops on specific topics, including possible insurance measures. The guidelines for non-Annex I Parties were improved at COP 8. The guidelines provide flexibility for more detailed

reporting of information on vulnerability and adaptation needs as well as on mitigation.

The Marrakesh Accords also established a separate work programme for least developed countries. This programme hinges on the preparation of national adaptation programmes of action (NAPAs) which open a channel for LDCs to inform donors of their vulnerability to climate change and their priority adaptation needs. Many LDCs already need support to help them adapt to climate change, but are ill-equipped to prepare full national communications that could swiftly detail those needs. The work of preparing NAPAs will be funded by a newly created Least Developed Country Fund (see page 10) and supported by an LDC Expert Group composed of 12 members with varied experience of climate change and sustainable development.

Building capacity

Developing countries, countries with economies in transition (EIT Parties) and LDCs need help to build their capacities to respond to climate change. Areas where this need is acute include improving and transferring technology, preparing national communications and drawing on the financial mechanism. A **Consultative Group of Experts (CGE)** was established during COP 5 in 1999 to look into ways to improve national communications prepared by non-Annex I Parties and, at COP 7, it was given an additional mandate to study problems and constraints hindering their completion.

In the Marrakesh Accords, governments agreed on two new frameworks for capacity-building, one for developing countries and another for EIT Parties. These frameworks will enable both groups to implement the Convention and participate to the full in the Kyoto Protocol process. Part of the guidance the frameworks offer to the GEF and others is that capacity-building should be country-driven, involve learning-by-doing, and build on existing activities. They also call on developing countries and EIT Parties to continue to declare specific needs and priorities, while interacting with one another to share lessons and experiences. Annex II Parties are expected to provide additional financial and technical resources, and all Parties should improve on existing activities. Progress on all these fronts will be monitored by the SBI.

Technology transfer

For developing countries, adopting environmentally friendly technologies and sustainable development approaches could enable them to avoid wrong turns taken by industrial countries in the past before the risks were known. The secretariat supports Parties' efforts in this direction mainly by synthesizing and sharing information, such as assessments of the technology needs of developing countries and information on technology transfer activities of Annex II Parties and others. It offers technical papers on such topics as adaptation technologies and terms of transfer. It has also developed a technology information system (TT:CLEAR, accessible on the secretariat web site), including an inventory of environmentally friendly technologies.

Following a two-year consultative process, a framework for 'meaningful and effective actions' was agreed as part of the Marrakesh Accords covering the following areas:

- Assessing technology needs
- Establishing a technology information system
- Creating enabling environments for technology transfer
- Providing capacity-building for technology transfer
- Funding to implement the framework.

Funding for this work is available through the GEF's climate change focal area programme and will also be available, in due course, through the Special Climate Change Fund. An Expert Group on Technology Transfer has been established to oversee the implementation of the framework and to identify ways of advancing activities in this area. Composed of 20 members, the group meets twice a year and reports to the SBSTA.

Research

All Parties under the Convention commit themselves to cooperative activities on **research and observation** of the global climate system, and to **education, training and public awareness** efforts relating to climate change. The Convention's work on research and observation is carried out in cooperation with the GCOS secretariat, together with other agencies that share in WMO's Climate Agenda. Joint concerns include the deterioration

of climate observing systems in many regions and the need to increase participation by developing countries in climate observation. The GCOS secretariat has held a number of regional workshops and other activities and periodically reports to the SBSTA on its work. An advance was made at COP 5, when Parties adopted guidelines for reporting global climate observation activities in national communications.

Involving the public

Education, training, public awareness, public participation and public access to information are key mechanisms for gaining public support for measures to combat climate change. Article 6 of the Convention seeks to promote action at the national level, as well as cooperation at the regional and international levels, to provide the education, training and public awareness needed to understand and deal with climate change and its impacts.

At COP 8, in New Delhi, a five-year work programme was adopted, aimed at integrating Article 6 activities into existing sustainable development and climate change strategies. It also set out to build on actions relating to the Convention's technology transfer and capacity-building frameworks. Named the **New Delhi Work Programme**, it defines the scope of possible activities at the national and international levels, encourages the spread and exchange of information (including IPCC reports), and promotes partnership and networking efforts. A novel feature of the work programme is that it recognizes the important role of NGOs and IGOs in supporting Article 6 efforts and encourages these organizations to respond through their own activities. International partnerships and synergies figure prominently in this work programme. The secretariat was called upon to work on the structure and content of an information network clearing house that would facilitate access to and exchange of information on resources, needs, lessons learned and best practices. A set of databases is being developed to feed into the clearing house, drawing on information contributed by partner organizations and submissions by Parties outlining examples of successful national reporting practice. A prototype of the clearing house is expected to be launched in early 2004.

Country checklist

✓	AFGHANISTAN	✓	EGYPT
✓	ALBANIA	✓✓	EL SALVADOR
✓	ALGERIA	✓✓	EQUATORIAL GUINEA
	ANDORRA	✓✓	ERITREA
✓	ANGOLA	✓✓■	ESTONIA
✓✓	ANTIGUA AND BARBUDA	✓	ETHIOPIA
✓✓	ARGENTINA	✓✓	FIJI
✓	ARMENIA	✓✓■	FINLAND
✓■	AUSTRALIA	✓✓■	FRANCE
✓✓■	AUSTRIA	✓	GABON
✓✓	AZERBAIJAN	✓✓	GAMBIA
✓✓	BAHAMAS	✓✓	GEORGIA
✓	BAHRAIN	✓✓■	GERMANY
✓✓	BANGLADESH	✓	GHANA
✓✓	BARBADOS	✓✓■	GREECE
✓■	BELARUS	✓✓	GRENADA
✓✓■	BELGIUM	✓✓	GUATEMALA
✓	BELIZE	✓✓	GUINEA
✓✓	BENIN	✓	GUINEA-BISSAU
✓✓	BHUTAN	✓	GUYANA
✓✓	BOLIVIA	✓	HAITI
✓	BOSNIA AND HERZEGOVINA		HOLY SEE
✓	BOTSWANA	✓✓	HONDURAS
✓✓	BRAZIL	✓✓■	HUNGARY
	BRUNEI DARUSSALAM	✓✓■	ICELAND
✓✓■	BULGARIA	✓✓	INDIA
✓	BURKINA FASO	✓	INDONESIA
✓✓	BURUNDI	✓	IRAN (ISLAMIC REPUBLIC OF)
✓✓	CAMBODIA		IRAQ
✓✓	CAMEROON	✓✓■	IRELAND
✓✓■	CANADA	✓	ISRAEL
✓	CAPE VERDE	✓✓■	ITALY
✓	CENTRAL AFRICAN REPUBLIC	✓✓	JAMAICA
✓	CHAD	✓✓■	JAPAN
✓✓	CHILE	✓✓	JORDAN
✓✓	CHINA	✓	KAZAKHSTAN
✓✓	COLOMBIA	✓	KENYA
✓	COMOROS	✓✓	KIRIBATI
✓	CONGO	✓	KUWAIT
✓✓	COOK ISLANDS	✓	KYRGYZSTAN
✓✓	COSTA RICA	✓✓	LAO PEOPLE'S DEMOCRATIC REPUBLIC
✓	COTE D'IVOIRE	✓✓■	LATVIA
✓■	CROATIA	✓	LEBANON
✓✓	CUBA	✓✓	LESOTHO
✓✓	CYPRUS	✓✓	LIBERIA
✓✓■	CZECH REPUBLIC	✓	LIBYAN ARAB JAMAHIRIYA
✓	DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	✓■	LIECHTENSTEIN
✓	DEMOCRATIC REPUBLIC OF THE CONGO	✓✓■	LITHUANIA
✓✓■	DENMARK	✓✓■	LUXEMBOURG
✓✓	DJIBOUTI	✓	MADAGASCAR
✓	DOMINICA	✓✓	MALAWI
✓✓	DOMINICAN REPUBLIC	✓✓	MALAYSIA
✓✓	ECUADOR	✓✓	MALDIVES

✓✓	MALI				SOMALIA
✓✓	MALTA				✓✓ SOUTH AFRICA
✓	MARSHALL ISLANDS			✓✓■	SPAIN
✓	MAURITANIA			✓✓	SRI LANKA
✓✓	MAURITIUS			✓	SUDAN
✓✓	MEXICO			✓	SURINAME
✓✓	MICRONESIA (FEDERATED STATES OF)			✓	SWAZILAND
✓■	MONACO			✓✓■	SWEDEN
✓✓	MONGOLIA			✓■	SWITZERLAND
✓✓	MOROCCO			✓	SYRIAN ARAB REPUBLIC
✓	MOZAMBIQUE			✓	TAJIKISTAN
✓	MYANMAR			✓✓	THAILAND
✓	NAMIBIA			✓	THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA
✓✓	NAURU			✓	TOGO
✓	NEPAL			✓	TONGA
✓✓■	NETHERLANDS			✓✓	TRINIDAD AND TOBAGO
✓✓■	NEW ZEALAND			✓✓	TUNISIA
✓✓	NICARAGUA			✓■	TURKEY
✓	NIGER			✓✓	TURKMENISTAN
✓	NIGERIA			✓✓	TUVALU
✓✓	NIUE			✓✓	UGANDA
✓✓■	NORWAY			✓■	UKRAINE
✓	OMAN			✓	UNITED ARAB EMIRATES
✓	PAKISTAN			✓✓■	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND
✓✓	PALAU			✓✓	UNITED REPUBLIC OF TANZANIA
✓✓	PANAMA			✓■	UNITED STATES OF AMERICA
✓✓	PAPUA NEW GUINEA			✓✓	URUGUAY
✓✓	PARAGUAY			✓✓	UZBEKISTAN
✓✓	PERU			✓✓	VANUATU
✓	PHILIPPINES			✓	VENEZUELA
✓✓■	POLAND			✓✓	VIET NAM
✓✓■	PORTUGAL			✓	YEMEN
✓	QATAR			✓	ZAMBIA
✓✓	REPUBLIC OF KOREA			✓	ZIMBABWE
✓	REPUBLIC OF MOLDOVA				
✓✓■	ROMANIA			✓✓■	EUROPEAN COMMUNITY
✓■	RUSSIAN FEDERATION				
✓	RWANDA				
✓	SAINT KITTS AND NEVIS				
✓	SAINT LUCIA				
✓	SAINT VINCENT AND THE GRENADINES				
✓✓	SAMOA				
✓	SAN MARINO				
✓	SAO TOME AND PRINCIPE				
✓	SAUDI ARABIA				
✓✓	SENEGAL				
✓	SERBIA AND MONTENEGRO				
✓✓	SEYCHELLES				
✓	SIERRA LEONE				
✓	SINGAPORE				
✓✓■	SLOVAKIA				
✓✓■	SLOVENIA				
✓✓	SOLOMON ISLANDS				

Key to symbols

Annex I

Annex I EIT*

Annex II

Annex B (Kyoto Protocol)

Ratified** UNFCCC

Ratified** the Kyoto Protocol

* Annex I country with economy in transition.

** Indicates country has ratified, or acceded to, or accepted, or approved the treaty in question.

For an updated list of Parties, consult the secretariat web site unfccc.int

Convention and Protocol

Activities implemented jointly (UNFCCC)

The Convention allows Annex I Parties to implement policies and measures jointly with other Parties to help meet their emissions goals. COP 1 launched a pilot phase of 'activities implemented jointly' (AIJ). Under AIJ, Annex I Parties may implement projects that reduce emissions (such as energy conservation projects) or increase removals of greenhouse gases by carbon sinks (such as reforestation projects) in other Parties. However, no credits are gained for the resulting emission reductions or removals (whereas they are under the Kyoto Protocol, see page 16). The AIJ pilot phase is intended to help build know-how through experience.

Although the pilot phase was linked to goals for 2000, COP 5 decided to prolong it beyond that date to continue the learning process. This was considered especially important for regions such as Africa where experience with AIJ had until then been limited. The secretariat compiles synthesis reports on the AIJ projects reported to it, which must have been endorsed by both host and investing countries. In reporting on their AIJ projects, Parties are expected to use a uniform reporting format (URF), to make it easy to compare information. The COP periodically reviews progress, based on the synthesis reports.

By June 2001, more than 150 AIJ projects had been notified to the secretariat, involving about 25 per cent of the Parties to the Convention, either as investors or as hosts. About 70 per cent of host Parties are non-Annex I Parties, but EIT parties still host the majority of AIJ projects, although the balance is gradually shifting towards developing countries. Most projects relate to renewable energy and energy efficiency but the biggest involve forest preservation, reforestation or restoration.

Emissions of Annex I Parties (1990)

Annex I Party carbon dioxide emissions in 1990 and their share of the total for the purpose of determining entry into force of the Kyoto Protocol

Party	1990 CO ₂ emissions (Gg)	%
Australia	288,965	2.1
Austria*	59,200	0.4
Belgium *	113,405	0.8
Bulgaria	82,990	0.6
Canada	457,441	3.3
Czech Republic	169,514	1.2
Denmark*	52,100	0.4
Estonia	37,797	0.3
Finland*	53,900	0.4
France*	366,536	2.7
Germany*	1,012,443	7.4
Greece*	82,100	0.6
Hungary	71,673	0.5
Iceland	2,172	0.0
Ireland*	30,719	0.2
Italy*	428,941	3.1
Japan	1,173,360	8.5
Latvia	22,976	0.2
Liechtenstein	208	0.0
Luxembourg*	11,343	0.1
Monaco	71	0.0
Netherlands*	167,600	1.2
New Zealand	25,530	0.2
Norway	35,533	0.3
Poland	414,930	3.0
Portugal*	42,148	0.3
Romania	171,103	1.2
Russian Federation	2,388,720	17.4
Slovakia	58,278	0.4
Spain*	260,654	1.9
Sweden*	61,256	0.4
Switzerland	43,600	0.3
United Kingdom*	584,078	4.3
USA	4,957,022	36.1
*15 European Community member states combined		24.2

The table does not include Annex I Parties that had not yet submitted a national communication under the Convention when the Protocol was adopted. The emissions of these Parties will not be counted towards the entry into force threshold. Figures exclude the land-use change and forestry sector.

The Protocol

The processes prescribed in the Convention have evolved apace since it was adopted in 1992. The foregoing pages describe progress made towards implementing its provisions. These moves have boosted the world community's response to climate change in many important ways. The Convention continues to serve as the main focus for intergovernmental action to combat climate change. It also remains the basis for critical work on reporting, finance, technology transfer and other fundamental issues that form the backbone of the climate change process.

A parallel advance has been the adoption in 1997 and subsequent development of the Kyoto Protocol, with its legally binding emissions targets for industrialized countries. The adoption in 2001 of the Marrakesh Accords, clarified the Protocol's rules in detail.

Before the Protocol can enter into force, however, at least 55 Parties to the Convention need to ratify (or approve, accept, or accede to) the Protocol, including enough Annex I Parties to encompass 55 percent of that group's carbon dioxide emissions in 1990 (see box on page 15). These conditions ensure that no single Annex I Party may block the entry into force of the Protocol. The first Parties ratified the Protocol in 1998 and its entry into force is expected at any moment.

The framework for action

The Kyoto Protocol supplements and strengthens the Convention. Only Parties to the Convention can become Parties to the Protocol. The Protocol is founded on the same principles as the Convention and shares its ultimate objective, as well as the way it groups countries into Annex I, Annex II and non-Annex I Parties. It will also share the Convention's institutions, including its two subsidiary bodies and secretariat. The Conference of the Parties will serve as the 'meeting of the Parties' to the Protocol. The IPCC will support the Protocol on scientific, technical and methodological matters as it does the Convention.

General commitments and rules

The Protocol's rules focus on:

- **Commitments**, including legally binding emissions targets and general commitments
- **Implementation**, including domestic steps and three novel implementing mechanisms
- **Minimizing impacts on developing countries**, including use of an Adaptation Fund
- **Accounting, reporting and review**, including in-depth review of national reporting
- **Compliance**, including a Compliance Committee to assess and deal with problem cases.

These five elements are described at length in the pages that follow, together with details of the way they are intended to work, as indicated by the Marrakesh Accords and subsequent decisions by the COP.

In addition to emissions targets for Annex I Parties, the Kyoto Protocol also contains a set of general commitments (mirroring those in the Convention) that apply to all Parties, such as:

- Taking steps to improve the quality of emissions data
- Mounting national mitigation and adaptation programmes
- Promoting environmentally friendly technology transfer
- Cooperating in scientific research and international climate observation networks
- Supporting education, training, public awareness and capacity-building initiatives.

Implementing the Protocol

Commitments on emissions

At the heart of the Protocol lie its **legally binding emissions targets** for Annex I Parties. These amount to an aggregate reduction shared among all such Parties of at least 5 per cent from 1990 levels by 2008-2012. All Annex I Parties have individual emissions targets, which are listed in the Protocol's Annex B and were decided in Kyoto after intensive negotiation. The 15 member States of the European Community agreed to take advantage of a calculation under the Protocol, known as a 'bubble', to redistribute their overall reduction targets among themselves in a proportional way.

Generally, Parties must reduce or limit their emissions relative to their 1990 levels (the **base year**). The EIT Parties, however, may choose another base year, as they can also do under the Convention. In addition, any Party may choose a base year of either 1990 or 1995 for its emissions of HFCs, PFCs and SF₆ (see box on page 18). Parties may offset their emissions by increasing the amount of greenhouse gases removed from the atmosphere by carbon sinks in the land use, land-use change and forestry sector (see page 23). However, only certain activities that remove greenhouse gases are eligible and these are subject to defined rules. Specific rules also govern the extent to which emissions from this sector can be used to meet targets.

All six greenhouse gases are put together in the same basket for accounting purposes, weighted by their respective **global warming potentials** (GWP). A GWP is a measure, defined by the IPCC, of the relative effect of a substance in warming the atmosphere over a given period (100 years in the case of the Kyoto Protocol), compared with a value of one for carbon dioxide. Methane's GWP is 21.

Timetables

Emissions targets must be achieved as an average over the first **commitment period** of 2008-2012. However, in order to show early action, Parties must have already made 'demonstrable progress' towards meeting their commitments under the Kyoto Protocol by 2005, and must submit a progress report on this matter by 1 January 2006.

A five-year period was preferred to a single target year as a way to smooth out annual fluctuations in emissions arising from unforeseen factors such as economic cycles or weather patterns.

Each Annex I Party is committed under the Kyoto Protocol to **limit or reduce** its emissions to a level known as its **assigned amount**. Before the commitment period begins, each Annex I Party must file a report providing emissions data for its base year so that its assigned amount can be calculated. Each must also decide at this stage if it will use 1990 or 1995 as a base year for emissions of HFCs, PFCs and SF₆ (see box on page 18).

If a Party's emissions during the commitment period are below the level required by its target, it may carry over the difference to a new commitment period beyond 2012, subject to certain limits. Credits earned from increased removals by sinks cannot be carried over, and credits from joint implementation projects and the clean development mechanism (see page 21) can be carried over only up to a level of 2.5 per cent of the assigned amount.

Policies and measures

To achieve the Protocol's targets, Annex I Parties are required to implement climate change policies and measures at home that have a mitigating effect on climate change. The Protocol does not specify what form these should take but leaves such decisions to national governments. Measures that could achieve the desired effects includes:

- Enhancing energy efficiency
- Promoting renewable energy
- Favouring sustainable agriculture
- Recovering methane emissions through waste management
- Encouraging reforms in relevant sectors to reduce emissions
- Removing subsidies and other market distortions
- Protecting and enhancing greenhouse gas sinks
- Reducing transport sector emissions.

The Protocol paves the way for intergovernmental cooperation to help improve the effectiveness of climate policy, calling on Parties to share experiences and lessons arising from mitigation measures. The Parties have called in turn on the SBSTA to undertake work aimed at improving the transparency, effectiveness and comparability of policies and measures by (among other things) defining specific criteria and measurable indicators of success.

The SBSTA also looks into further options for cooperation to enhance the individual and combined effectiveness of policies and measures. A participatory process is envisaged, with workshops and other activities open to non-governmental organizations (NGOs) from the business and environmental communities,

Montreal crossovers

Certain greenhouse gases (HFCs and PFCs) are used as replacements for ozone-depleting substances such as chlorofluorocarbons (CFCs) being phased out under the 1987 Montreal Protocol. Special provisions therefore apply in the Kyoto Protocol to the date (1990 or 1995) Parties may choose to adopt as the base year by which its emissions targets are set in respect of these gases. Parties that opt for 1995 as the base year generally set themselves a lower emissions reduction goal for these three gases than Parties that choose 1990.

together with interested international organizations. Since the adoption of the Protocol, many private and state-run enterprises have invested more in climate-friendly technologies and activities at the domestic level, such as energy efficiency and renewable energy projects.

In its 2001 Third Assessment Report the IPCC confirmed that recent technical progress in greenhouse gas emission reduction has been faster than anticipated. It notes that 'no regrets' opportunities exist to cut emissions from some sources at low cost or even no net cost (where, for example, efficiency savings outweigh implementation costs). A smart mix of policy instruments, integrated with wider environmental, economic and social goals, can help ease costs of meeting the Protocol's targets.

Greenhouse gas emissions from many industrialized countries – except for the EIT Parties and a few Annex II Parties – have continued to rise since 1990. For some countries, reducing

emissions below 1990 levels would in effect represent a reduction of more than 20 per cent from their predicted 2012 level.

To help Annex I Parties reach their reduction targets, several mechanisms have been built into the Protocol's provisions to allow Parties to reduce emissions in other countries (see pages 19-22). These mechanisms are intended, however, as a supplement to domestic actions to reduce emissions.

Bunker fuels

Emissions from aviation and marine bunker fuels used in international transport are reported separately from the overall emission totals of Parties under the Convention, and are treated differently. The Protocol requires Parties to work with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) to control emissions from these sources. A separate decision taken on adoption of the Kyoto Protocol urges the SBSTA to continue ongoing work on how best to track and classify bunker fuel emissions.

"1. The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions [of listed greenhouse gases] . . . do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012.

"2. Each Party included in Annex I shall, by 2005, have made demonstrable progress in achieving its commitments under this Protocol."

The opening clauses of Article 3 of the Kyoto Protocol. For a chart of the emission limitation commitments referred to in the first clause, see page 2.

Mechanisms

The Kyoto mechanisms

The Protocol broke new ground with three innovative mechanisms – joint implementation, the clean development mechanism (CDM) and emissions trading – designed to boost the cost-effectiveness of climate change mitigation by opening ways for Parties to cut emissions, or enhance carbon 'sinks', more cheaply abroad than at home. Although the cost of limiting emissions or expanding removals varies greatly from region to region, the effect for the atmosphere is the same regardless where the action is taken.

Even so, concerns have been voiced that the mechanisms could allow Parties to avoid taking climate change mitigation action at home, or could confer a 'right to emit' on Annex I Parties or lead to exchanges of fictitious credits, undermining the Protocol's environmental goals. The Marrakesh Accords sought to dispel such fears, asserting that the Protocol creates no 'right, title or entitlement' to emit. They call on Annex I Parties to implement domestic action to reduce emissions in ways that could help to narrow per capita differences between developed and developing countries, while pursuing the Convention's ultimate objective.

The Marrakesh Accords impose no quantitative limits on the extent to which the mechanisms can be used to meet emissions targets. Annex I Parties must, however, provide information showing that their use of the mechanisms is 'supplemental to domestic action'. Domestic policies and measures must constitute 'a significant element' of efforts to meet commitments. The facilitative branch of the Compliance Committee (see page 24) will assess this information.

To be eligible to participate in the mechanisms, Annex I Parties must have ratified the Kyoto Protocol and be in compliance with their commitments under the Protocol in terms of the methodology and reporting requirements for emissions. They must also have in place a national registry (see box).

In the first commitment period, some grace is allowed for the timing of reports for the LULUCF sector (see page 23). The Compliance Committee's enforcement branch (see page 24) will deal with questions concerning a Party's eligibility to participate in the mechanisms, by means of a fast-track procedure.

Tracking units

A computerized system of registries will keep track of transactions in assigned amount units (AAUs), certified emission reductions (CERs), emission reduction units (ERUs) and removal units (RMUs). **National registries** are kept by Annex I Parties, a **CDM registry** is maintained by the CDM Executive Board and a **transaction log** managed by the secretariat. Each **national registry** is to contain accounts that the Party and any legal entities authorized by the Party can use to hold any type of unit. It must also have accounts for setting units aside to comply with emissions targets at the end of a commitment period (retirement) and for stopping units from being used towards compliance with a Party's target (cancellation).

National registries will be the channel for transactions between Parties or between account-holding legal entities. The **CDM registry** will contain CER accounts for non-Annex I Parties participating in the CDM. The secretariat will establish and maintain the transaction log to verify transactions of AAUs, CERs, ERUs and RMUs as they are proposed, including their issuance, transfers and acquisitions between registries, cancellation and retirement. If any transaction is not in order, each registry is mandated to stop the transaction.

The Marrakesh Accords allow businesses, environmental NGOs and other 'legal entities' to participate in any of the mechanisms – or in all three – albeit at the discretion of their governments. The mechanisms operate by rules that rest on openness and transparency. Proceedings of the bodies that oversee them are open to observers and all non-confidential information is made public on the Internet and through other channels. Safeguards cover what information can be designated as confidential.

Joint implementation

Joint implementation allows Annex I Parties to implement projects that reduce emissions, or increase removals using sinks, in other Annex I countries. Emission reduction units (ERUs) generated by such projects can then be used by investing Annex I Parties to help meet their emissions targets. To avoid double accounting, a corresponding subtraction is made from the host Party's assigned amount. The term 'joint implementation' is a convenient shorthand for this mechanism, although it does not appear in the Kyoto Protocol. In practice, joint implementation projects are most likely to take place in EIT countries, where there is generally more scope for cutting emissions at lower costs.

Joint implementation projects must have the approval of all Parties involved and must lead to emission reductions or removals that are additional to any that would have occurred without the project. Projects such as reforestation schemes involving activities in the LULUCF sector must conform to the Protocol's wider rules on this sector and Annex I Parties are to refrain from using ERUs generated from nuclear facilities to meet their targets. Projects starting from the year 2000 that meet these rules may be listed but ERUs can be issued only after 2008.

There are two possible procedures for carrying out a joint implementation project. The first (often called 'track one') may be applied if the host Party fully meets all eligibility requirements. In this situation, the host Party may apply its own procedures to projects, issue ERUs and transfer them to the investing Party. The second procedure ('track two') applies if the host Party does not meet all the eligibility requirements. In such cases, the number of ERUs generated by projects must be verified under a procedure supervised by the **Article 6 Supervisory Committee**, to be set up by the COP/MOP at its first meeting. This Committee is to be composed of 10 voting members with 10 alternates.

The track two provision allows joint implementation projects to begin before a host Party meets all its eligibility requirements. However, before that Party can issue and transfer ERUs, it must at least have established its assigned amount and submitted a fully up-to-date emission inventory. Under track two, project participants prepare a project design document which is then evaluated by an independent body – known as an **independent entity** – that has been accredited to carry out this work by the Article 6 supervisory committee. The aim of the evaluation, which includes an opportunity to assess public comment, is to make sure that each project has an appropriate, transparent and conservative **baseline** (the starting point for measuring emission reductions or removals), together with a **monitoring plan** to ensure that emissions and removals are accurately logged.

On the basis of the project design document, the independent entity determines whether the project should proceed. Unless a participating Party or three Committee members request a review, the project is deemed to be accepted after 45 days. Once it is

under way, participants must report to the independent entity on estimated emission reductions or removals generated by the project. The entity will review this report and use it to calculate the emission reductions or removals the host Party can issue as ERUs. Unless a participating Party or three Committee members request further review, these will be accepted after 15 days. If the host Party has met the track two eligibility requirements, it can issue the ERUs and transfer them to the investing Party.

However, a host Party that qualifies for track one may nevertheless use the track two verification procedures if it wishes. It may consider ERUs generated under such an international verification process to have a higher value.

Emissions trading

Emissions trading enables Annex I Parties to acquire assigned amount units (AAUs) from other Annex I Parties that are able to more easily reduce emissions. It enables Parties to pursue cheaper opportunities to curb emissions or increase removals wherever those opportunities exist, in order to reduce the overall cost of mitigating climate change. Annex I Parties may also acquire, from other Annex I Parties, CERs from CDM projects, ERUs from joint implementation projects, or RMUs from sink activities.

To answer concerns that some Parties could 'oversell' and then be unable to meet their own targets, each Annex I Party is required to hold a minimum level of credits at all times. This is known as the **commitment period reserve**. It is calculated as 90 per cent of the Party's assigned amount, or as the amount of emissions reported in its most recent emissions inventory (multiplied by five, for the five years of the commitment period), whichever figure is the lower. If a Party's credits fall below its commitment period reserve, it must restore the reserve to its required level within 30 days. ERUs verified through the Article 6 Supervisory Committee can be freely transferred, regardless of the level of the commitment period reserve

Clean development

The clean development mechanism (CDM)

The CDM is expected to generate investment in developing countries, especially from the private sector, enhance the transfer of environmentally friendly technologies and promote sustainable development in general.

Such impacts are to be additional to the finance and technology transfer commitments of Annex II Parties under the Convention and the Kyoto Protocol. Public funding for the CDM must not result in a diversion of official development assistance.

The CDM allows Annex I Parties to implement sustainable development project activities that reduce emissions in non-Annex I Parties. As well as helping non-Annex I Parties work towards sustainable development, and so to contribute to the ultimate objective of the Convention, the certified emission reductions (CERs) generated by such projects can be used by Annex I Parties to help meet their own emissions targets.

The CDM rules laid down in the Marrakesh Accords focus on projects that reduce emissions. Rules are also being developed for including afforestation and reforestation activities in the CDM for the first commitment period. Annex I Parties will be limited in how much they may use CERs from such 'sink' activities towards their targets – up to 1 per cent of the Party's emissions in its base year, for each of the five years of the commitment period.

CDM projects must have the approval of all Parties involved. This must be gained from **designated national authorities** set up by Annex I and non-Annex I Parties. Projects must lead to real, measurable and long-term climate benefits in the form of emission reductions or removals that are additional to any that would have occurred without the project. The Protocol urges a prompt start to the CDM, allowing CERs to accrue from projects from the year 2000 onwards if they meet CDM requirements. The CDM **Executive Board** was elected at COP 7 and is guiding and overseeing practical arrangements of the CDM.

Composed of 10 voting members, with 10 alternates, the Executive Board operates under the authority of the Conference

of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP), or the COP in the period before the first meeting of the COP/MOP. The Executive Board has defined procedures for accepting projects and encouraging the development of small-scale projects, notably for renewable energy and energy efficiency activities.

The CDM project cycle

Participants must prepare a **project design document**, including a description of the baseline and monitoring methodology to be used, an analysis of environmental impacts, comments received from local stakeholders and a description of new and additional environmental benefits that the project is intended to generate. An operational entity will then review this document and, after providing an opportunity for public comment, decide whether or not to validate it.

When a project is duly **validated**, the operational entity will forward it to the Executive Board for formal **registration**. Unless a participating Party or three Executive Board members request a review of the project, its registration becomes final after eight weeks.

Once a project is running, it will be **monitored** by the participants. They will prepare a monitoring report, including an estimate of CERs generated by the project, and will submit it for **verification** by an operational entity. To avoid conflict of interest, this will usually be a different operational entity to that which validated the project. Following a detailed review of the project, which may include an on-site inspection, the operational entity will produce a verification report and, if all is well, will then **certify** the emission reductions as real. Unless a participating Party or three Executive Board members request a review within 15 days, the Board will issue the CERs and distribute them to project participants as requested.

Finally, CERs generated by CDM projects will be subject to a levy known as the 'share of the proceeds'. Two per cent of the CERs from each project will be paid into the Adaptation Fund to help particularly vulnerable developing countries adapt to the adverse effects of climate change. Projects in least developed countries are exempt from paying this share of the proceeds.

Another percentage, yet to be determined, will be levied on projects to cover the CDM's administrative costs. In the meantime Parties have been urged to help finance these expenses by making voluntary contributions to a UNFCCC Trust Fund for Supplementary Activities.

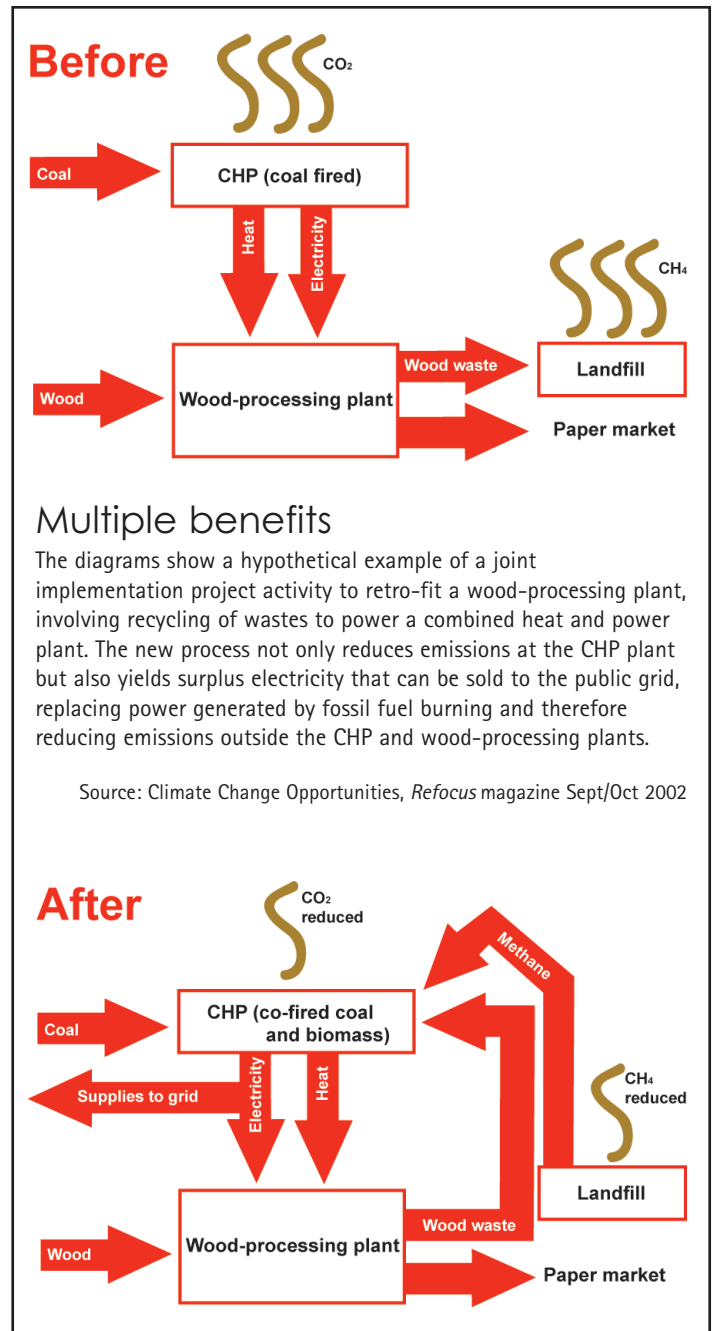
The Board has begun accrediting independent organizations, known as operational entities, to play a key role in the CDM project cycle (see box on page 21). The role of these operational entities will be formalized through their designation by the COP or the COP/MOP.

CDM projects must be based on appropriate, transparent and conservative **baselines** (the starting point for measuring emission reductions or removals) and must have in place a rigorous **monitoring plan** to collect accurate emissions data. These must be devised according to approved methodologies. If project participants wish to use a new methodology, it must first be authorized and registered by the Executive Board.

Minimizing impacts

As with the Convention, the Protocol pays special attention to the concerns of developing countries, with emphasis on the specific needs of least developed countries and of countries that are particularly vulnerable either to the adverse impacts of climate change or to the side-effects of response measures. It commits Annex I Parties to strive to reduce emissions so as to help minimize adverse impacts on developing countries. The Marrakesh Accords require Annex I Parties to report on an annual basis on the actions they are taking to meet this commitment. The information reported may be considered by the facilitative branch of the Compliance Committee. Non-Annex I Parties are invited to provide information on their specific needs and concerns. The Accords also highlight actions that stand out as ways to minimize impacts, such as:

- Removing subsidies for environmentally unfriendly technologies
- Developing carbon capture and storage technologies, advanced fossil-fuel technologies and non-energy uses of fossil fuels
- Capacity-building to improve efficiency
- Helping developing countries to diversify economies that currently rely heavily on fossil fuel production or commerce.



Sinks and safeguards

Land and forest

Climate change can be partially counteracted at relatively low cost by removing greenhouse gases from the atmosphere – for example through planting trees or improving forest management. But it is often difficult to estimate emissions and removals from the land use, land-use change and forestry (LULUCF) sector. The rules for this sector include:

- A set of principles to guide activities
- A list of eligible activities
- Common definitions
- A capping system
- Further development of inventory methods.

The Protocol accounts for emissions and removals from several LULUCF activities, as long as they were begun in or after 1990, when assessing if Annex I Parties have met their emissions targets. First, each Party must account for emissions and removals from all afforestation, reforestation and deforestation activities. Second, the Marrakesh Accords allow Parties to choose if they wish to account for forest management, cropland management, grazing land management and revegetation. Parties must make this choice before the commitment period and it may not be changed subsequently.

To help ensure consistency and comparability among Parties, common definitions are established for the term 'forest' and for each of seven classes of activity. Some variation is permitted, to allow for national conditions, but must be applied consistently.

Carbon removals and emissions reductions achieved as a result of LULUCF interventions can count towards meeting Parties' emission targets. This is done by issuing so-called removal units (RMUs) that Annex I Parties can use towards compliance. However, the extent to which the Parties can account for emissions and removals in this way during the first commitment period is limited by a series of caps.

Checking for compliance

In order to assess the compliance of each Annex I Party with the Protocol, information will be needed on the steps they have taken to implement the Protocol, as well as on their emissions over the commitment period from 2008 to 2012 and their transactions under the mechanisms. Accordingly, the Kyoto Protocol and Marrakesh Accords set strict accounting, reporting and review procedures. These build on a decade of experience gained under the Convention process.

Information specific to the implementation of the Kyoto Protocol will be incorporated in the national communications and greenhouse gas inventories from Annex I Parties prepared under the terms of the Convention (see box). All this information will be reviewed by expert review teams coordinated by the secretariat. Review findings will be forwarded to the Compliance Committee (see page 24), to the COP/MOP and to the Party concerned.

Required Protocol inputs

Each Annex I Party that ratifies the Protocol must incorporate information on its implementation of the Protocol in the national communications that it prepares under the Convention, including:

- Details of the Party's national system and national registry
- How the Party's use of the mechanisms is supplemental to domestic action
- Details of policies and measures implemented by the Party to meet emissions targets
- For Annex II Parties, information on new and additional financial resources provided to non-Annex I Parties to help them meet their commitments under the Protocol.

In addition, each Annex I Party must incorporate the following information on the implementation of the Kyoto Protocol in the greenhouse gas inventories it prepares under the Convention:

- Any data specific to the LULUCF sector
- Any changes to national systems or national registries
- Transfers and acquisitions of emissions credits (see box, page 24)
- Actions to minimize adverse impacts on developing countries.

Prior to the commitment period, each Annex I Party must put in place in addition to a national system for estimating its greenhouse gas emissions and removals, a national registry for recording transactions of AAUs, CERs, ERUs and RMUs (see box). Each Party must submit a description of these facilities, as well as emissions data needed to formally calculate its assigned amount. Expert review teams will assess this information. Assuming no questions are raised, the assigned amount of each Annex I Party is then recorded in a compilation and accounting database maintained by the secretariat.

During each year of the commitment period, expert review teams will check greenhouse gas inventories to ensure they are transparent, consistent, comparable, complete and accurate. Their work will involve at least one country visit during the commitment period. If problems emerge, the team may recommend adjusting the data to make sure that emissions are not (so far as they can judge) over- or under-estimated.

If there is disagreement between a Party and the review team about the data adjustment that should be made, the Compliance Committee will intervene. Aside from recommending data adjustments, the expert review team has the mandate to raise any apparent implementation problems – known as **questions of implementation** – with the Compliance Committee. Once any problems or questions of implementation have been resolved, the records of the Party's emissions for that year will be updated in the compilation and accounting database. Every year the secretariat will publish a compilation and accounting report for each Annex I Party, based on information in its database. This report will be forwarded to the Compliance Committee, the COP/MOP and the Party concerned.

After the commitment period, and after the expiry of the additional period for fulfilling commitments, the secretariat will prepare a final compilation and accounting report which will form the basis for assessing whether Parties have complied with their emissions targets. This will be done by comparing each Party's emissions in the commitment period with its holdings of AAUs, CERs, ERUs and RMUs in its national registry.

Accounting units

The mechanisms operate on the basis of accounting units, to be tracked and recorded through national registries established and maintained by Annex I Parties. Joint implementation projects result in emission reduction units (ERUs) and CDM projects generate certified emission reductions (CERs). Under emissions trading, Parties may exchange assigned amount units (AAUs), CERs and ERUs, as well as removal units (RMUs) generated through sink activities in the LULUCF sector. Each of these units equates to one tonne of carbon dioxide equivalent (calculated using the Global Warming Potential index) and each unit will have a unique, traceable serial number.

The compilation and accounting database will record the emissions of Parties, as reported in annual inventories, together with their total annual transactions of AAUs, CERs, ERUs and RMUs. The transaction log maintained by the secretariat will be an extra monitoring tool.

Compliance procedures

The Protocol's compliance system, agreed as part of the Marrakesh Accords, gives added legal muscle to the process of holding Parties to their commitments. The Compliance Committee set up under the system consists of a plenary, a bureau and two branches (a facilitative branch and an enforcement branch).

The facilitative branch aims to provide advice and assistance to Parties, including an 'early warning' if a Party appears to be in danger of not complying with its target, whereas the enforcement branch has powers to apply certain measures if a Party does not meet its target. If a Party fails to meet its emissions target, it must make up the difference, plus a penalty of 30 per cent in the second commitment period. It must also develop a compliance action plan and its eligibility to 'sell' credits under emissions trading will be suspended.

The Protocol sets out detailed procedures for considering cases of potential non-compliance, together with a fast-track procedure for reviewing cases that may affect a Party's eligibility to participate in the mechanisms. For further details of the compliance procedures, see the companion volume to this guide or consult the secretariat web site.

Future directions

Although emissions data are still incomplete, early returns suggest that Annex I Parties as a whole probably succeeded – at least collectively – in returning their emissions to 1990 levels by 2000. The reduction in some Parties was not directly related to climate policies. Emissions in countries with economies in transition (EITs) declined steeply by over 40 per cent between 1990 and 1999, but emissions from most Annex II Parties continued to rise over the same period by 6.6 per cent, with some countries experiencing much larger increases.

In the Convention's 10th anniversary year, enough additional pledges to ratify the Kyoto Protocol were offered at the 2002 World Summit on Sustainable Development to indicate that it will enter into force without long delay. Attention is now shifting to implementing the Protocol's provisions for those countries that have chosen to ratify it.

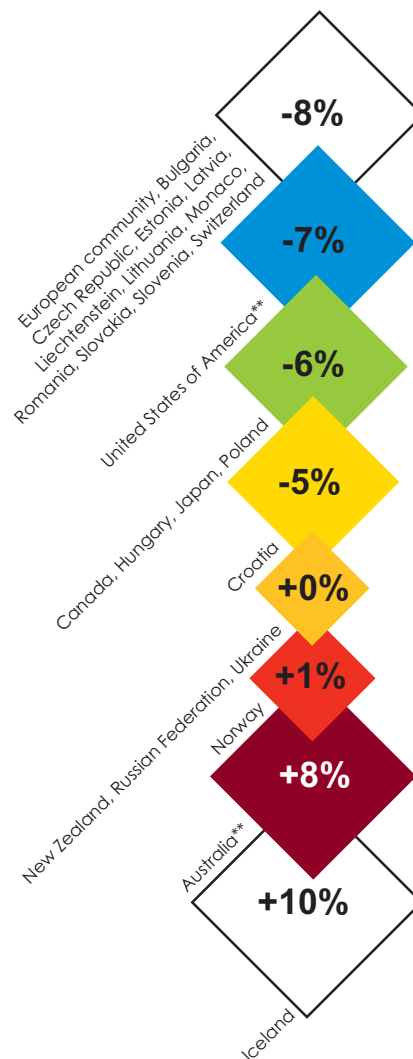
For all Parties to either treaty, however, the Convention will continue to be the focus of intergovernmental action to combat climate change. It will also remain the main focus of new work on reporting, finance, technology transfer and other technical or structural requirements that form the backbone for such action.

An increased focus on implementation does not mean the end of the climate negotiations. Talks continue to further develop the rules of the Convention and the Protocol. New rounds of negotiations will be launched to boost and extend commitments, moving ever closer to the Convention's ultimate objective.

The Kyoto Protocol was never expected to solve the problem of climate change in the first commitment period, the 5 years between 2008-2012. It is just a first step. Negotiations as to what should be done next will have to start soon.

The percentage amounts shown are emissions reduction targets or emission caps. Iceland, for example, may emit up to 10 percent above its 1990 emissions; the Russian Federation may not emit above its 1990 emissions; and the current Member States of the European Union, collectively have to reduce their emissions to a level 8 percent below their 1990 emissions. ►

Countries included in Annex B to the Kyoto Protocol and their Emissions Targets (1990* to 2008/2012)



* The base year is flexible in the case of EIT countries (see page 17)

** Countries which have declared their intention not to ratify the Protocol

Sources and further reading

Official texts

Definitive versions of both treaty texts appear on the UNFCCC web site unfccc.int and in hard copy or CD-ROM versions from the UNFCCC Library, at the address on the back cover.

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Abbreviations and acronyms

AAU	Assigned amount unit (exchanged through emissions trading)		UNCCD secretariats
		JWG	Joint Working Group
AG13	Ad Hoc Group on Article 13 (1995–1998)	LDC	Least developed country
AGBM	Ad Hoc Group on the Berlin Mandate (1995–1997)	LULUCF	Land use, land-use change and forestry
AIJ	Activities implemented jointly	N ₂ O	Nitrous oxide
AOSIS	Alliance of Small Island States	NAPA	National adaptation programmes of action
CACAM	Group of countries of Central Asia and the Caucasus, Albania and Republic of Moldova (negotiating coalition)	NGO	Non-governmental organization
		OECD	Organisation for Economic Co-operation and Development
CBD	Convention on Biological Diversity		
CDM	Clean development mechanism	OPEC	Organization of Petroleum Exporting Countries
CER	Certified emission reduction (generated through the CDM)	PFC	Perfluorocarbon
		RMU	Removal unit (generated in Annex I Parties by LULUCF activities that absorb carbon dioxide)
CFC	Chlorofluorocarbon		
CGE	Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention	SBI	Subsidiary Body for Implementation
		SBSTA	Subsidiary Body for Scientific and Technological Advice
		SF ₆	Sulphur hexafluoride
CH ₄	Methane	TT:CLEAR	Technology Transfer Information Clearing House
CG-11	Central Group 11 (negotiating coalition of Central European Annex I Parties)	UN	United Nations
		UNCCD	United Nations Convention to Combat Desertification
CO ₂	Carbon dioxide	UNCED	United Nations Conference on Environment and Development (Rio de Janeiro, Brazil, 1992)
COP	Conference of the Parties		
COP/MOP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol	UNCTAD	United Nations Conference on Trade and Development
		UNDP	United Nations Development Programme
EIT	Economies in transition (former Soviet Union and Central and Eastern European nations)	UNECE	United Nations Economic Commission for Europe
		UNEP	United Nations Environment Programme
ERU	Emission reduction unit (generated through joint implementation projects)	UNFCCC	United Nations Framework Convention on Climate Change
GCOS	Global Climate Observing System	UNIDO	United Nations Industrial Development Organization
GEF	Global Environment Facility	URF	Uniform reporting format
GHG	Greenhouse gases	WCC	World Climate Conference
GRULAC	Group of Latin America and Caribbean States (United Nations regional group)	WEOG	Western European and Others Group (United Nations regional group)
GWP	Global warming potential	WHO	World Health Organization
HFC	Hydrofluorocarbons	WMO	World Meteorological Organization
ICAO	International Civil Aviation Organization	WSSD	World Summit on Sustainable Development
IEA	International Energy Agency		
IGO	Intergovernmental organization		
IMO	International Maritime Organization		
INC	Intergovernmental Negotiating Committee for the UNFCCC (1990–1995)		
IPCC	Intergovernmental Panel on Climate Change		
JLG	Joint Liaison Group (between the UNFCCC, CBD and		

The United Nations Framework Convention on Climate Change and the Kyoto Protocol stand out among international agreements as innovative levers for sustainable development and environmental protection. This guide sketches their history, their institutional formats and the commitments that participating nations affirm. It also outlines enabling and financial mechanisms that countries can turn to as they strive to tackle the problems and dilemmas that arise from global warming.

A companion guide offers details of existing and evolving processes and steps involved in reporting, compliance and other functions.

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