caring for climate

A guide to the Climate Change Convention and the Kyoto Protocol

UNFCCC (2005) Caring for Climate
A guide to the Climate Change Convention and the Kyoto Protocol
(revised 2005 edition)

Issued by the Climate Change Secretariat (UNFCCC) Bonn, Germany

Produced by the Information Services of the UNFCCC secretariat

Contributing editors: Joanna Depledge, Robert Lamb
Design and layout: Charles Lawler
Photos: UNFCCC conference photos by: Leila Mead (IISD)

ISBN 92-9219-020-2

For further information contact:

Climate Change Secretariat (UNFCCC)
Martin-Luther-King-Strasse 8
53175 Bonn, Germany
T: +49 228 815 1000
F: +49 228 815 1999
secretariat@unfccc.int
unfccc.int

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

Foreword

Discussions on climate change are often heated. Why? There is a broad consensus in the scientific community that global warming is underway. The impacts of a steadily warming planet, with rising global average temperatures, will be felt in many sectors of society: on agricultural production, on water availability, on health and on the mere subsistence of low-lying islands and coastal zones.

Climate change is caused by an increase of greenhouse gases in the atmosphere. These gases reach the atmosphere as a result of activities of our everyday life: the use of energy from fossil fuels (coal, oil and gas), in industrial processes, when flying or driving, or when using electric equipment at home. But greenhouse gases also come from agricultural production and deforestation.

It is clear that the economic stakes are high on all sides: the economic impact of climate change can be huge, and taking measures to reduce emissions will affect economic activity. But we cannot afford not taking action, as the climate system is under threat.

The United Nations and its member states, aware of the seriousness of this global problem, as presented by the scientific community, have been engaged in action to deal with it at a global level. They adopted the United Nations Framework Convention on Climate Change in 1992, which, in 1997, was followed by the Kyoto Protocol.

The Convention has developed into a broad platform for its 189 Parties to strive, on the one hand, for the stabilization of concentrations of greenhouse gases, and, on the other hand, to prepare societies for the inevitable impacts of climate change. The Kyoto Protocol, which entered into force in February 2005, provides an important first step in this effort. It sets legally binding emission reduction requirements for the industrialized countries that are Party to it. A new range of instruments has been established by the Protocol that will help address climate change. These include market-based mechanisms, which can assist in identifying the most economical ways of bringing harmful emissions down.

Annual meetings and many special gatherings track the progress and develop further measures to be taken. They bring together governments, international organisations, the scientific community and civil society.

This guide explains what climate change is all about and what action is being taken at global level. It provides an overview of the Convention and the Kyoto Protocol in plain language.

Given the increasing focus on implementation, it is all the more important that international agreements are understood by the citizens of the world. Only with broad support can these agreements be translated into concrete action, implemented at the international, national and local levels. Solving the problem must be everybody's business.

Joke Waller-Hunter
Executive Secretary, UNFCCC, Bonn, May 2005

Contents

Introduction

The world's climate has always varied naturally but compelling evidence from around the world indicates that a new kind of climate change is now under way, foreshadowing drastic impacts on people, economies and ecosystems. Levels of carbon dioxide and other 'greenhouse gases' in the atmosphere have risen steeply during the industrial era owing to human activities like deforestation or heavy fossil fuel use, spurred on by economic and population growth. Like a blanket round the planet, greenhouse gases trap heat

Figure 1: 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**	▲ 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**	▼ 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**	▲ 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**	▼ 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 intensties, and mean and peak precipitation intensities **Prognosis: likely, over some areas**	▲ 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**	▼ 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**	▲ Flood and drought magnitude and damage in temperate and tropical Asia
Increased intensity of mid-latitude storms. **Prognosis: little agreement between current models**	▲ Risks to human life and health ▲ Property and infrastructure losses ▲ Damage to coastal ecosystems

Key to symbols
▲ Increased
■ Extended
▼ Decreased

energy in the Earth's lower atmosphere (see below). If levels rise too high, the resulting overall rise in air temperatures – global warming – is liable to disrupt natural patterns of climate.

The Intergovernmental Panel on Climate Change (IPCC) drew attention in its Third Assessment Report to "new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities". Uncertainties in the process of projecting future trends lead to a wide range of estimates, but the IPCC predicted a rise of 1.4 to 5.8 °C in global mean surface temperatures over the next 100 years. Even at the lower end of this range the impact of warming is likely to be dramatic (see opposite). Impacts on human lives 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 especially vulnerable to adversity or emergencies on any major scale. Yet people in developing countries have created only a small proportion of greenhouse gas emissions.

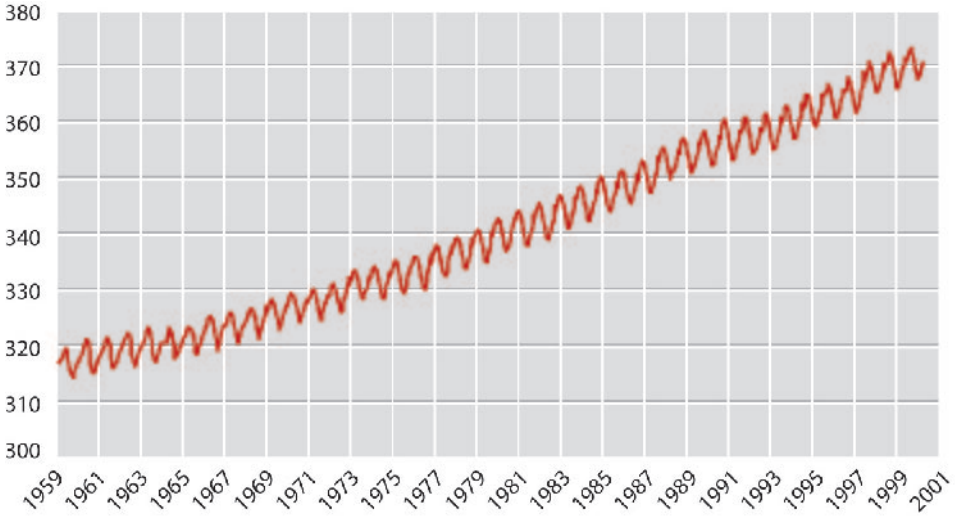
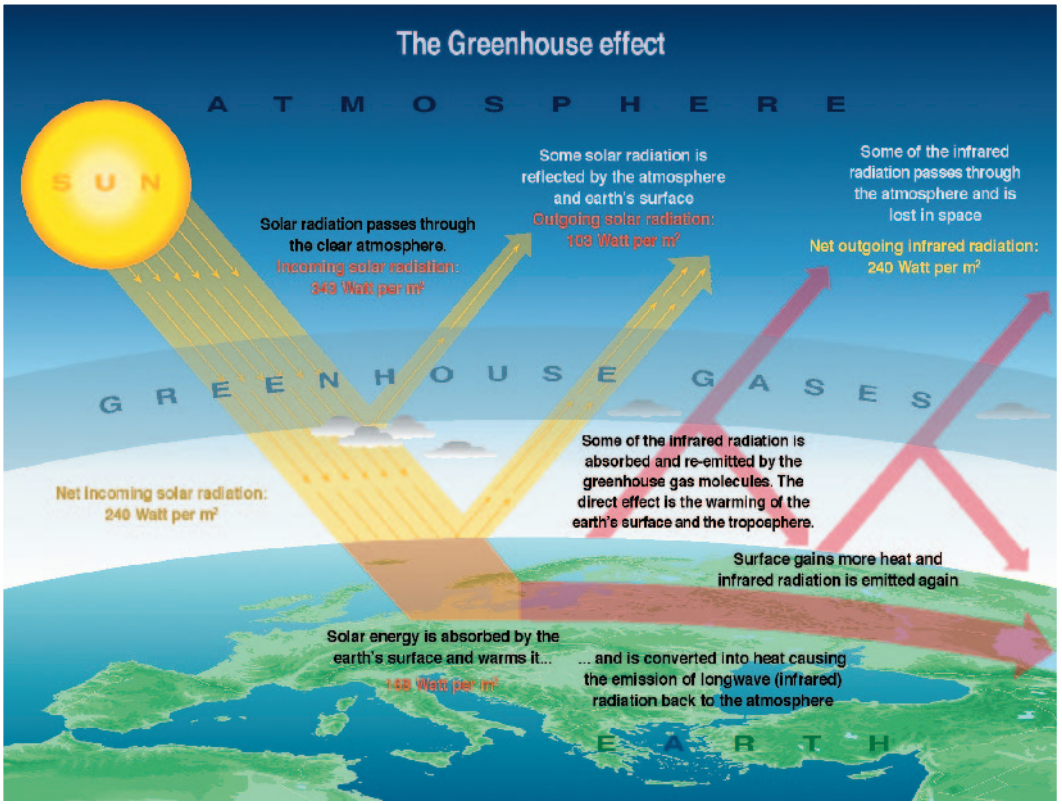


Figure 2: Carbon dioxide in the atmosphere, Records from Mauna Loa, Hawaii (in parts per million by volume) show how CO_2 concentrations in the atmosphere have increased since accurate records began. Source: Keeling and Whorf 2001 in Global Environment Outlook 3 (UNEP/Earthscan Publications 2002)

Figure 3: The greenhouse effect
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.



The main greenhouse gases

The Convention's provisions concern 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 (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulphur hexafluoride (SF_6)

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) currently being phased out under the Montreal Protocol (see page 27). SF_6 is used in some industrial processes and in electric equipment.

Background

Scientific evidence of human interference with the climate first emerged in the international public arena in 1979 at the First World Climate Conference (see timelines). As public awareness of environmental issues continued to increase in the 1980s, governments grew even more concerned about climate issues. In 1988 the United Nations General Assembly adopted resolution 43/53, proposed by the Government of Malta, urging: "... protection of global climate for present and future generations of mankind."

In the same year, the governing bodies of the World Meteorological Organization and of 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).

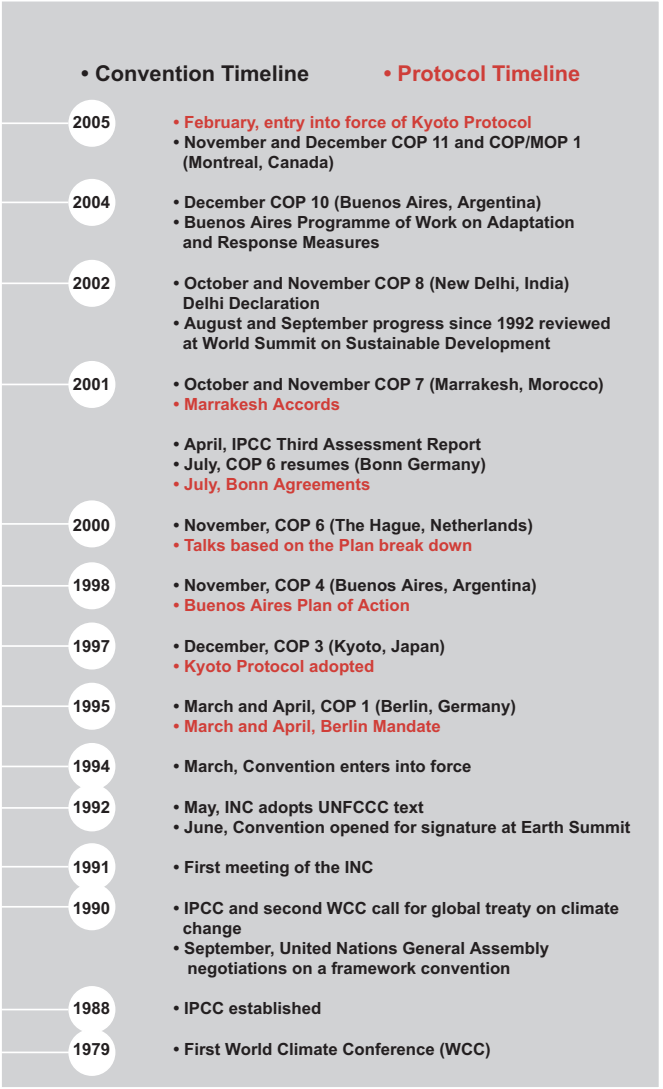


Figure 4: Convention and Protocol timelines

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. Ten 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, turn to pages 21 and 22.

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 informally as the COP. They meet to foster and monitor its implementation and continue negotiations 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 were aware that its provisions would not be sufficient by themselves to tackle climate change in all its aspects. At the first Conference of the Parties (COP 1), held in Berlin, Germany in early 1995, a new round of talks was launched to discuss firmer, more detailed commitments for industrialized countries, a decision known as the Berlin Mandate.

The Kyoto Protocol evolves

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

A fresh round of negotiations launched in Buenos Aires, Argentina at COP 4 in November 1998 linked negotiations on the Protocol's rules to implementation issues – such as finance and technology transfer – under the umbrella of the Convention. The deadline for negotiations under the resulting set of decisions, known as the Buenos Aires Plan of Action, was set as COP 6 at The Hague, the Netherlands in late 2000.

When that time came, however, the complexity of the technical and political issues at stake created deadlock

in negotiations at The Hague. Talks reconvened at a resumed session of COP 6 in Bonn, Germany, in July 2001. Governments struck a political deal – the Bonn Agreements – signing off the controversial aspects of the Buenos Aires Plan of Action. A third report from the IPCC, meanwhile, improved the climate for negotiations by offering the most compelling scientific evidence so far presented, of a warming world.

At COP 7, held a few months later in Marrakesh, Morocco, negotiators built on the Bonn Agreements and brought a major negotiating cycle to a close by adopting a broad package of decisions. The **Marrakesh Accords** spelt out more detailed rules for the Protocol as well as advanced prescriptions for implementing the Convention and its rules.

The Protocol could only enter into force after at least 55 Parties to the Convention had ratified it, including enough industrialized countries listed in the Convention's Annex I to encompass 55 per cent of that group's carbon dioxide emissions in 1990 (see page 10). The first Parties ratified the Protocol in 1998. With the ratification by the Russian Federation on 18 November 2004, the prescribed 90-day countdown was set in motion: The Kyoto Protocol entered into force on 16 February 2005.

The Convention

The Convention

The Convention divides countries into three main groups with 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 table opposite.

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 "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 – are mostly developing countries (see pages 21-22 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 Parties 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.

Commitments

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 term applied to forests and other ecosystems that can remove more greenhouse gases from the atmosphere than they emit)
- Preparations to adapt to climate change
- Plans for climate research, observation of the global climate system and data exchange
- Plans to promote education, training and public awareness relating to climate change.

Countries included in Annex I

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

*Countries with economies in transition (EIT Parties)

Institutions

The supreme body of the Convention is its Conference of the Parties (COP). It meets every year to review the implementation of the Convention, adopt decisions to further develop the Convention's rules, and negotiate new commitments. Two subsidiary bodies meet at least twice a year to steer 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.

Secretariat services

A secretariat staffed by international civil servants and hosted since 1996 by Germany in Bonn supports all institutions involved in the climate change process, particularly the COP, the subsidiary bodies and their Bureaux. Its mandate is to make arrangements for the sessions of the Convention bodies, to help Parties fulfil their commitments, to compile and disseminate data and information, and to confer with other relevant international agencies and treaties.

The Global Environment Facility (GEF) and the **Intergovernmental Panel on Climate Change** (IPCC) work with the Convention, but are not attached to 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. 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.

Partnerships

The Convention's business is interwoven with that of other international organizations that work towards sustainable development. 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 Secretariats of the three so-called 'Rio Conventions' – UNFCCC, the CBD (Convention on Biological Diversity) and UNCCD (United Nations Convention to Combat Desertification). It enables them to share insights about their work and methods, identify potential joint actions and anticipate any potential problems. Other institutions regularly consulted include the World Meteorological Organization (WMO) and the Ramsar Convention on International Wetlands.

Input may be sought on specific issues, 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 also happen to be greenhouse gases.

At regional level, the secretariat liaises with other relevant treaty bodies to coordinate efforts and outputs. 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. The secretariat also cultivates links with national or international **non-governmental organizations** (NGOs), trade associations and various other non-statutory bodies.

Reporting

Central to the intergovernmental process of the COP is an imperative to share, communicate and respond to information by way of national communications. These reports provide the means by which the COP monitors progress made by Parties in meeting their commitments and in achieving the Convention's ultimate objectives. For the purposes of transparency and comparability in reporting, the COP provides guidelines for Parties to use when reporting information in their national communications. The COP uses this information to assess and review the implementation of the Convention and assess the overall aggregated effect of steps taken by Parties. Since 1995, the guidelines have been successively revised and improved in the light of Parties' experience of putting them to use. For Annex I Parties, guidelines for preparing national communications were last revised in 1999, those for emissions inventories in 2002. Guidelines for non-Annex I Parties were also changed in 2002.

Annex I Parties must report more often and in more detail. Non-Annex I Parties normally depend on receiving funding to cover reporting costs. Non-Annex I Parties are differentiated into two groups; the LDCs and other developing country Parties to the Convention. Initial national communications of non-Annex I Parties are required to be presented within three years of the entry into force of the Convention for that Party, or of the date when financial resources become available. LDCs, however, can do so "at their discretion". The deadlines for submission of subsequent national communications by all Parties are decided by the COP.

How Annex I countries report

A 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 fell on 15 April 1997 (or 15 April 1998 for those EIT Parties, for which the date of entry into force fell a year later) and the third on 30 November 2001. The deadline for the fourth submission is 1 January 2006.

Annex I Parties must also submit to the secretariat an annual inventory of their greenhouse gas emissions and removals by 15 April each year, including data on emissions for 1990 (or another applicable base year for EIT Parties), and for the years between this base year and the last-but-one year prior to the year of the submission. Inventories due in April 2005, for instance, had to show emissions data for the year 2003.

The entry into force of the Kyoto Protocol puts additional reporting requirements on Annex I countries that are Party to the Protocol, so that progress on achieving the Kyoto targets can be monitored (see page 34).

Review provisions

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 stringent technical assessment of each Party's commitments and steps taken to fulfil them. 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 typically include findings from visits to the country concerned as well as desk reviews. Since 2003, greenhouse gas inventories from all Annex I Parties have been reviewed annually. Technical review consists of an initial check, a synthesis and assessment and an individual review, including desk reviews, centralized reviews and in-country visits in varying combinations. 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

Non-Annex I Parties are not required to submit a separate annual greenhouse gas inventory, and their national communications are not subject to in-depth reviews. The number of non-Annex I Parties that have submitted initial national communications which also contain GHG inventories, rose from just 22 in 1999 to123 by April 2005. Most of them, cover most gases by sectors, making it possible to build up a much more complete picture of emissions across the world. Many contained estimates of both emissions and removals. The latest UNFCCC guidelines only require non-Annex I Parties to estimate GHG inventories for the year 1994 for the initial national communication, or alternatively 1990, and for the second national communication for the year 2000. However, by 2005 36 countries had presented data for two or more years. Despite these encouraging trends, many developing countries still face reporting challenges, notably the LDCs, which in view of their lack of resources are not required to submit initial communications within a specified period. Even so, 38 of the 48 LDCs that are Parties to the Convention had submitted their national communications by September 2004.

The Greenhouse Gas Information System

To manage and blend the abundant flows of data emerging from reporting and review processes, the UNFCCC secretariat has developed a Greenhouse Gas Information System as the basis for the provision of information to the Conference of the Parties and for various types of data analysis. By the end of 2004 this system contained detailed inventory information for more than 140 Parties at different levels of aggregation. It is updated twice a year and is continuously supported and enhanced to ensure that it offers reliable data suitable for a wide range of analyses. It is also accessible to the public online at http://ghg.unfccc.int where it can be searched by Party, sector, gas and year.

Funding

Since 1991, grants worth about US$ 1.3 billion have been provided from the GEF Trust Fund for action on climate change in developing countries. 3 per cent of this total was used to fund the preparation of national communications of non-Annex I Parties. Another US$ 6.9 billion was injected 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 three new funds. Two under the Convention and one under the Protocol. The funds are managed by the GEF:

- **A Special Climate Change Fund** that complements other funding mechanisms and exists 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.
- **A Least Developed Countries Fund** intended to support a special work programme to assist LDCs.
- In addition, an **Adaptation Fund**, which with the entry into force of the Kyoto Protocol will now become operational, will finance practical adaptation projects and programmes in developing countries, and support capacity-building activities. It will be funded from the adaptation levy on CDM projects (see page 29). In addition Annex I Parties can make contributions to it.

Several Annex II Parties have declared at the COP in Bonn in 2001 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.

Adaptation to climate change

How should the Convention recognise and cater to the vulnerability of developing countries to the impacts of climate change – and the impacts of response measures? Since COP 7, political emphasis on adaptation to climate change steadily has increased to complement work on mitigation, the main subject of negotiations until then. This emphasis on adaptation culminated in the adoption at COP 10 of the Buenos Aires programme of work, which emphasizes implementation of activities identified in the context of national communications.

Building on the Marrakesh Accords, the Buenos Aires programme of work foresees further action on vulnerability and adaptation and information gathering and methodologies, in particular related to:

- Data collection and analysis, including through the enhancement of systematic observation and monitoring networks
- Modelling, in particular related to general circulation models and their downscaling to regional and national levels
- Capacity-building
- Education, training and awareness raising
- Carrying out pilot and demonstration projects
- Integrated climate change impact and vulnerability assessments
- Promoting the transfer of technologies for adaptation
- Preventive measures, planning, preparedness and management of disasters relating to climate change, including contingency planning, in particular for droughts and floods and extreme weather events

In relation to the impact of the implementation of response measures, the range of activities under the Convention cover issues like:

- Economic diversification
- Developing and transferring more climate-friendly technologies, such as non-energy uses of fossil fuels, advanced fossil fuel technologies and carbon capture or storage
- Expanding the use of climate-friendly energy sources
- Capacity-building.

Various workshops and expert meetings will be held as a follow-up to the Buenos Aires work programme to enhance understanding about adaptation to climate change and about impacts of response measures.

National communications provide a crucial basis for work on adaptation. The guidelines for reporting by non Annex I Parties were improved at COP 8. The guidelines require more detailed reporting of information on vulnerability and adaptation needs, as well as on mitigation.

The COP has put much emphasis on work for LDCs. This agenda hinges on preparation of national adaptation programmes of action (NAPAs) that open the way for LDCs to inform donors of their vulnerability to climate change and of their adaptation needs. Many LDCs already need help in adapting to climate change but are ill-equipped to prepare full national communications that promptly detail those needs. The work of preparing NAPAs is expected to be funded by the Least Developed Country Fund (see page 15) and supported by an LDC Expert Group composed of 12 members with wide-ranging experience in 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 this Group 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 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 the advice that capacity-building should be country-driven, involve learning-by-doing and build on existing national and bilateral 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 is monitored by the SBI.

Technology transfer

Adopting environmentally friendly technologies and sustainable development approaches should enable developing countries 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** (EGTT) 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. Common concerns include the deterioration of climate observing systems in many regions and the need to increase participation by developing countries in climate observation networks. The GCOS secretariat has held a number of regional workshops and other activities and periodically reports to the SBSTA on its work. Progress 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 essential for gaining public support for measures to combat and cope with climate change. Article 6 of the Convention seeks to spur action at national level, as well as cooperation at regional and international levels, to provide the education, training and public awareness needed to understand and deal with climate change 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 and promotes partnership and networking efforts. International partnerships and synergies figure prominently in the work programme. It recognizes the importance of non-governmental and inter-governmental organisations to efforts under Article 6 and encourages them to gear their own activities to this agenda.

The secretariat was called on 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 this clearing house, drawing on information contributed by partner organizations and submissions by Parties to outline examples of successful national reporting practice. A prototype of the clearing house was launched in early 2004.

Joint action

The Convention allows Annex I Parties to implement policies and measures jointly with other Parties to help meet their emissions reduction 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) on other Parties' territories. However, no credits are gained for the resulting emission reductions or removals (whereas they are under the Kyoto Protocol).

The AIJ pilot phase is intended to help build knowledge 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. The COP periodically reviews progress, based on the

synthesis reports. By June 2003, more than 157 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.

Country checklist

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

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

■ 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.

The status of ratification is subject to change. For the latest update consult <unfccc.int>.

The Kyoto Protocol

The Kyoto Protocol

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

A parallel advance has been the adoption in 1997 of the Kyoto Protocol with its legally binding emissions targets for industrialized countries and subsequent development of the rules for its implementation.

The Kyoto Protocol supplements and strengthens the Convention, providing a framework for remedial and precautionary action to tackle adverse effects of climate change. 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 and classifies countries. It also shares the Convention's institutions, including its subsidiary bodies and secretariat. The Conference of the Parties serves as the 'meeting of the Parties' to the Protocol. The IPCC supports the Protocol on scientific, technical and methodological matters, in the same way as it supports the Convention. 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 the Adaptation Fund
- **Accounting, reporting and review**, including in-depth review of national reporting
- **Compliance**, including a Compliance Committee to assess and deal with problems.

These five elements are described at length in the sections 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.

Commitments on emissions

At the heart of the Protocol lie its **legally binding emissions targets** for Annex I Parties. GHG reduction or limitation targets are prescribed for 38 developed countries and for the European Community as a whole. These targets are listed in Annex B to the Protocol. In total, the achievement of these targets was expected to lead to at least a 5 per cent reduction in annual GHG emissions for these 39 Parties taken together on average during the first commitment period from 2008 to 2012. The 15 member States of the European Community (prior to the EU expansion to 25 states in May 2004) agreed to redistribute their reduction targets among themselves, forming the so-called "EU bubble".

Generally, Parties must reduce or limit their emissions relative to their 1990 levels (the standard reference point or **base year**). The EIT Parties, however, may choose another base year. In addition, any Party may choose a base year of either 1990 or 1995 for its emissions of HFCs, PFCs and SF6 (see page 27). 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 33). However, only certain activities that remove greenhouse gases are eligible and these are subject to strictly 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 (for instance) is 21.

The Protocol does not contain any quantitative targets for emission reductions in developing countries. It means that the GHG reductions under the Protocol relate to only a part of global GHG emissions. Estimates made by the International Energy Agency (IEA) indicate that in 2000 the share of Annex B countries in global CO_2 emissions was about 60 per cent. This share is expected to decrease in the future.

It is expected that the achievement of GHG reduction targets by 37 Annex B Parties to the Protocol would lead to a total reduction in their emissions of about 5 per cent. These reductions do not take account of

Australia and the United States, which have stated they do not intend to ratify the Protocol. Such reductions cannot reverse the growth trend in global GHG observed at present, but do represent a first step in slowing down this growth.

Timetable

Emissions targets prescribe an amount of emissions which must not be exceeded over the first commitment period 2008-2012. To show early action, however, Parties must have already made 'demonstrable progress' towards meeting commitments under the Kyoto Protocol by 2005, and must submit a progress report in this respect 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 not to exceed 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 page 27).
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 (page 29) 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 include:

- 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. 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, together with interested international organizations.

Since the adoption of the Protocol, many private and state-run enterprises have invested anew 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 mix of policy instruments, integrated with wider environmental, economic and social goals, can help ease the costs of meeting the 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 projected 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 and credit the results towards their own actions (see pages 28-33). These mechanisms are intended, as a supplement to domestic actions.

Special attention to developing countries' concerns

As with the Convention, the Protocol pays special attention to the concerns of developing countries, with emphasis on the specific needs of LDCs and of countries that are particularly vulnerable either to the adverse impacts of climate change or to the side-effects of response

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.

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 than those which choose 1990.

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.

The Kyoto mechanisms

The Kyoto Protocol broke new ground with three innovative mechanisms (joint implementation, the clean development mechanism 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 imposed no quantitative limits on the extent to which the mechanisms could be used to meet emissions targets. Annex I Parties were obliged, however, to provide information showing that their use of the mechanisms is 'supplemental to domestic action' and domestic policies and measures must constitute 'a significant element' of efforts to meet commitments.

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. In the first commitment period, some grace is allowed for the timing of reports for the LULUCF sector (see page 33). The Compliance Committee's enforcement branch (see page 35) will deal with questions concerning a Party's eligibility to participate in the mechanisms, by means of a fast-track procedure.

The Marrakesh Accords allowed businesses, environmental NGOs and other 'legal entities' to participate (at the discretion of their governments) in any of the mechanisms or in all three. 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.

The Clean Development Mechanism (CDM)

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

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 have since been developed for including afforestation and reforestation activities in the CDM for the first commitment period. Annex I Parties are 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

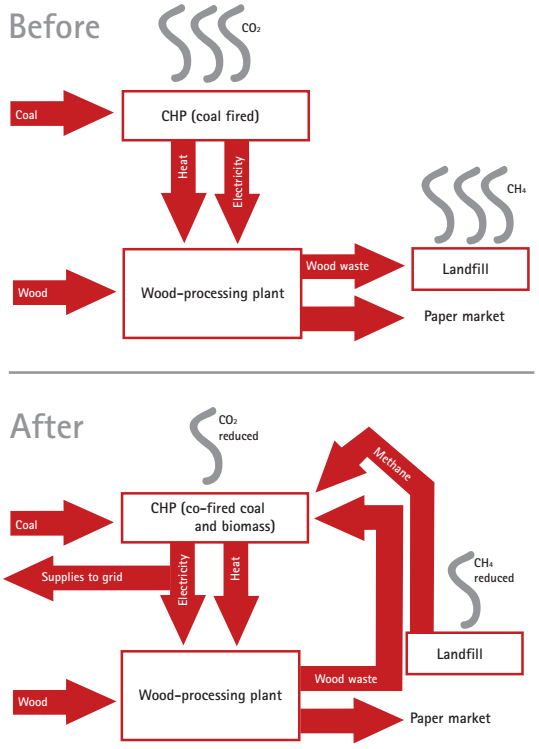


Figure 5: Multiple benefits. The diagrams show a hypothetical example of a joint implementation project activity to retro-fit a wood-processing plant, involving recycling of wastes to power a combined heat and power plant. The new process not only reduces emissions at the CHP plant but also yields surplus electricity that can be sold to the public grid, replacing power generated by fossil fuel burning and therefore reducing emissions outside the CHP and wood-processing plants. **Sources:** Climate Change Opportunities, *Refocus* magazine Sept/Oct 2002

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 be a different operational entity to that which validated the project.

Following a detailed review of the project, which may include an onsite 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 LDCs are exempt from paying this share of the proceeds.

Another per centage, 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.

of emission reductions or removals that are additional to any that would have occurred without the project.

Under the prompt start of the CDM, CERs may 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 meeting of the Parties to the Kyoto Protocol. 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.

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. The Board has accredited independent organizations, known as operational entities, to play a key role in the CDM project cycle (see page 30).

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 counting, 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. Only projects starting from the year 2000 that meet these rules may be listed .

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. It 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 have established its national registry.

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 lower. If a recalculation of the commitment period reserve leaves it above the total credits held by the Party, it must restore the reserve to its required level in 30 days. ERUs verified through the Article 6 Supervisory Committee can be freely transferred, regardless of the level of the commitment period reserve.

Sinks and safeguards

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. 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 re-vegetation. 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 the 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.

Entry into force of the Protocol has brought into play modified reporting and review requirements. The fourth national communications from Parties included in Annex I to the Convention are due by 1 January 2006. In addition, each Annex I Party is now required to have made demonstrable progress in achieving its commitments under the Protocol, to report on such progress by 1 January 2006 and to incorporate in national communications the supplementary information necessary to demonstrate compliance with commitments under the Protocol. This supplementary information should be submitted as part of the first national communication due under the Convention, following the Protocol's entry into force.

Each Party included in Annex B to the Protocol is required to submit, by 1 January 2007, a report on which to base the calculation of its assigned amount. Because submission of this report is required to initiate the 16-month period to establish eligibility to participate in the mechanisms, it is anticipated that many Annex B Parties will submit the reports in mid-2006. Each report will then be subject to an in-country review within one year of submission. Submission of the above reports will result in parallel review processes for Annex B Parties in 2006 and 2007.

Emissions accounting

Prior to the commitment period, each Annex I Party must set 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 page 28). Each

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 annual 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
- Actions to minimize adverse impacts on developing countries.

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 are 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 any 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 the AAUs, RMUs, ERUs, CERs, tCERs, ICERs it has retired in its national registry. The Protocol's compliance system, agreed as part of the Marrakesh Accords, gives

Accounting for compliance

The compliance of each Annex B Party with its emission target will be assessed by comparing its emissions during the commitment period with the assigned amount held by the Party. A system of electronic registries is being established to keep track of the levels of assigned amount for each Party.

Each tonne of assigned amount is issued into a Party's national registry as an assigned amount unit (AAU). A removal unit (RMU) can be issued for each tonne of greenhouse gases removed from the atmosphere through LULUCF activities (subject to the caps mentioned on page 34). For each tonne of emissions reduced through a JI project, national registries may issue an emission reduction unit (ERU) by converting an existing AAU or RMU.

A similar registry has been established by the CDM Executive Board for non-Annex I Parties hosting CDM projects. This **CDM registry** issues a certified emission reduction (CER) for each tonne of emissions reduced through such projects. These CERs are distributed to Parties and entities that participate in the CDM projects. A temporary or long-term unit (tCER or lCER) is issued for each tonne of greenhouse gases removed from the atmosphere through afforestation and reforestation CDM projects. In order to reflect the risk that these removals may not be permanent, tCERs and lCERs expire after a certain period and need to be "replaced" by other more permanent units. -->

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 exists 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.

As with any conventional banking system, these AAUs and other units are held by the registries in a system of accounts for Parties or entities. Transactions made under the Protocol's emissions trading provisions are implemented by making transfers from one account to another, either within the same national registry or between accounts in national registries of different Annex B Parties.

Annex B Parties 'retire' units in their national registries by moving them to a special retirement account. It is these units which will be considered when assessing the compliance of an Annex B Party with its target. Units which are not retired at the end of the commitment period may be 'carried over' in national registries (subject to limits) for use in the next commitment period. These registries also set up cancellation and replacement accounts as depositories of units which may not be used towards a target.

In order to transparently coordinate and track the movement of all these units, registries are linked via secure internet channels. Electronic messages are sent across the connections in this network to define what processing actions need to be undertaken and when they should take place. It is the job of the **international transaction log**, which is being put in place by the secretariat, to coordinate and monitor all these activities and ensure that each step conforms to the rules set under the Kyoto Protocol.

Looking ahead

The exact impact of the Kyoto Protocol on global GHG emissions is difficult to quantify, yet it represents a first step towards limiting national GHG emissions from developed countries, and setting up a framework for future – hopefully more significant – reductions leading in the long term to the reversal of current GHG growth. It provides an important first step to slow down the increase in GHG concentrations and make progress to the ultimate objective of the Convention: "to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." (UNFCCC, Art. 2)

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.

Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (1992). United Nations Framework Convention on Climate Change. In: Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the work of the second part of its fifth session, held at New York from 30 April to 9 May 1992. Addendum. (A/AC.237/18 (Part II) /Add.1, Annex I.) United Nations, New York.

UNFCCC (1998). Kyoto Protocol to the United Nations Framework Convention on Climate Change. In: Report of the Conference of the Parties on its third session, held at Kyoto from 1 to 11 December 1997. Addendum. Part Two: Action taken by the Conference of the Parties at its third session. Decision 1/CP.3, Annex (FCCC/CP/1997/7/Add.1.) UNFCCC, Bonn, Germany.

Other reports and sources

Intergovernmental Panel on Climate Change (2001). Third Assessment Report. Cambridge University Press for Intergovernmental Panel on Climate Change (IPCC). Cambridge UK and New York. Intergovernmental Panel on Climate Change. Also available online at: http://www.ipcc.ch

UNFCCC (2004). The First Ten Years. United Nations Framework Convention on Climate Change. Bonn, Germany.

Feenstra, Jan F. Burton, Ian. Smith, Joel B. Tol, Richard S.J. (Eds) (1998). Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies. UNEP and Universiteit Amsterdam Institute for Environmental Studies. Also available online at http://130.37.129/IVM/research/climatechange/fb_Handbook.htm

UNEP (2002) Global Environment Outlook 3. Published for the United Nations Environment Programme by Earthscan Publications Ltd. London, UK.

UNEP (2003). A simplified guide to the IPCC's Climate Change 2001: Mitigation. Geneva, Switzerland.

UNEP and UNFCCC (2002), revised edition. Understanding climate change: a beginner's guide to the UN Framework Convention and its Kyoto Protocol. Geneva, Switzerland.

UNEP and GRID-Arendal (2001) Vital Climate Graphics. Arendal, Norway.

UNEP and GRID-Arendal (2003). The climate changing our world. Arendal, Norway.

Williams, Michael (Ed.). (2001). Climate change information sheets. United Nations Environment Programme (UNEP) and the Climate Change Secretariat (UNFCCC). Geneva, Switzerland.

Abbreviations and acronyms

AAU	Assigned amount unit (exchanged through emissions trading)
AG13	Ad Hoc Group on Article 13 (1995–1998)
AGBM	Ad Hoc Group on the Berlin Mandate (1995–1997)
AIJ	Activities implemented jointly
AOSIS	Alliance of Small Island States
CACAM	Group of countries of Central Asia and the Caucasus, Albania and Republic of Moldova (negotiating coalition)
CBD	Convention on Biological Diversity
CDM	Clean development mechanism
CER	Certified emission reduction (generated through the CDM)
CFC	Chlorofluorocarbon
CGE	Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention
CH_4	Methane
CG	Central Group (negotiating coalition of Central European Annex I Parties)
CO_2	Carbon dioxide
COP	Conference of the Parties
COP/MOP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
EGTT	Expert Group on Technology Transfer
EIT	Economies in transition (former Soviet Union and Central and Eastern European nations)
ERU	Emission reduction unit (generated through joint implementation projects)
GCOS	Global Climate Observing System
GEF	Global Environment Facility
GHG	Greenhouse gases
GRULAC	Group of Latin America and Caribbean States (United Nations regional group)
GWP	Global warming potential
HFC	Hydrofluorocarbons
ICAO	International Civil Aviation Organization
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 UNCCD secretariats)
JWG	Joint Working Group
LDC	Least developed country
LULUCF	Land use, land-use change and forestry
N_2O	Nitrous oxide
NAPA	National adaptation programmes of action
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
PFC	Perfluorocarbon
RMU	Removal unit (generated in Annex I Parties by LULUCF activities that absorb carbon dioxide)
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SF_6	Sulphur hexafluoride
TT:CLEAR	Technology Transfer Information Clearing House
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development (Rio de Janeiro, Brazil, 1992)
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
URF	Uniform reporting format
WCC	World Climate Conference
WEOG	Western European and Others Group (United Nations regional group)
WHO	World Health Organization
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development


LIBRE
TAXI

The United Nations Framework Convention on Climate Change and its Kyoto Protocol stand out among international agreements as innovative levers for sustainable development and environmental protection. This guide sketches their history, the way they work 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 can arise from the complex side-effects of climate change.

CLIMATE CHANGE SECRETARIAT (UNFCCC)
Martin-Luther-King-Strasse 8, 53175 Bonn, Germany
unfccc.int

Revised edition, 2005
ISBN 92-9219-020-2