Climate change briefings

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The United Nations Framework Convention on Climate Change: An overview

This document provides an overview of the United Nations Framework Convention on Climate Change (FCCC) adopted at the United Nations Conference on Environment and Development in Rio De Janiero in June 1992. Rather than discussing every article in detail, the overview groups the articles into several key categories and described key issues in the Convention. The full text of the Convention is available on the World Wide Web through the FCCC (www. unfccc.de).

Definitions

Article 1 clarifies several terms used in the Convention, notably:

- *Climate change* refers to *human induced* change of the climate, on top of natural variability;
- *Greenhouse gases* (GHGs) includes all atmospheric gases that absorb and re-emit infrared radiation;
- *Regional economic integration organisation*, although not stated, essentially refers to the EU;
- *Reservoir* is a component of the climate system where GHGs are stored, such as the oceans;
- *Sink* is a process that removes GHGs from the atmosphere;
- *Source* is a process that releases GHGs into the atmosphere.

NB: Although not in the definitions, it is important to note that Annex I Parties are the OECD and former Soviet Union and East European Countries – ie the industrialised countries and countries with economies in transition to market economy. Annex II countries are the OECD only.

Objective

The objective of the FCCC, stated in Article 2, is to stabilise GHG concentrations in the atmosphere (ie not just emissions) to prevent dangerous human-induced interference with the climate system. The criteria for fulfilling this would be that ecosystems can adapt naturally, that food production is not threatened, and that 'economic development can proceed in a sustainable manner'.

Principles

Article 3 introduces a number of key principles including:

Common but differentiated responsibility: while all countries share responsibility for dealing with climate change, those that are most responsible and have the greatest means should bear the burden of combating climate change (ie the industrialised countries).

Precautionary principle: that where threats to the climate are serious and irreversible, action should be taken even if we do not have complete scientific certainty about climate change.

Considering the needs of developing countries, particularly those most vulnerable to climate change.

Right to sustainable development: climate change measures should be integrated into development plans.

International economic co-operation (i.e. trade): so climate change measures should not hinder international trade.

Commitments

Article 4 is the longest and most important article in the UNFCCC, because it lays out the respective commitments of Parties to the Convention.

Article 4.1 lays out commitments for *all Parties* to:

- publish GHG inventories;
- publish policies and measures to mitigate or adapt to climate change;
- promote technology transfer;
- promote sustainable management of sinks and reservoirs;
- co-operate in adaptation plans, e.g. for coastal areas, water resources, drought-affected areas in Africa;
- consider climate change in all relevant social, economic and environmental

policies and actions and minimise adverse impacts of measures to mitigate climate change;

- promote systematic research and observation of the climate system;
- promote education, training and awareness;
- communicate to the Conference of Parties on implementation of the Convention.

Article 4.2 lays out additional commitments for **Annex I Parties** to:

- return by 2000 to 1990 levels of GHG emissions – including the option to implement measures jointly, which is the basis for the flexible mechanisms discussed in the Kyoto Protocol (4.2a);
- communicate the policies and measures to reach this goal, and progress toward the goal, within 6 months after the Convention enters into force and periodically thereafter. (4.2b);
- report on sinks using best available techniques, to be decided at the first COP;
- co-ordinate economic instruments with other parties.

NB: Article 4.6 provides for some flexibility for the countries with economies in transition to implement their commitments.

Article 4.2d calls for a regular ***review of the adequacy of Annex I commitments*** (*not* those in Article 4.1), at the first COP and then again no later than December 1998. The COP is to take action to update commitments to meet the objective of the Convention. Article 4.2f calls on the COP by December 1998 to review the lists in Annex I and Annex II.

Article 4.2g allows for ***voluntary commitments*** by non-Annex I Parties, by agreeing to be bound by the commitments in Article 4.2a and b.

Article 4.3 to 4.5 refer to additional commitments of ***Annex II Parties*** to provide new and additional financial resources to meet the 'full agreed costs incurred by developing country parties' in meeting their commitments. Article 4.7 even says that developing countries can not implement their commitments without this assistance. Developing countries, therefore should not have to pay the additional costs of the commitments outlined in Article 4.1 Annex II Parties are to pay particular attention to the needs of the most vulnerable countries and to promote environmentally sound technology transfer.

Articles 4.8 and 4.9 refer to the special needs of countries that are ***most vulnerable to the adverse impacts*** of climate change (i.e. many poor developing countries or small island states) or the ***impact of implementing climate change mitigation measures*** (i.e. fossil fuel-exporting countries). Article 4.10 refers specifically to assisting countries that will be adversely affecting by implementation measures, notably ***fossil fuel-exporting countries*** or those heavily dependent on fossil fuels for their economies.

In addition, Article 12 requires countries to ***report on implementation*** of the Convention. ***All Parties*** must report on their GHG inventory, general steps taken to implement the Convention, and other relevant information. ***Annex I Parties*** must in addition provide a detailed description of policies and measures to implement their emissions reduction commitments, and the effectiveness of those measures. Annex II Parties shall also report on their activities to finance implementation of the Convention. Annex I Parties have six months for their first communication after the Convention enters into force. Non-Annex I Parties have three years, and will receive technical support from the COP. Least-developed countries have no specific deadline. Future communications deadlines are set by the COP.

Further co-operation

Articles 5 and 6 call on all Parties to co-operate in research and systematic observation and in education, training and awareness programmes regarding climate change.

Governance

Articles 7-11 and 13-14 lay out the governance and implementation framework for the FCCC. Article 7 establishes the **Conference of the Parties** to meet every year and, among other tasks, to:

- examine the obligations and institutional arrangements of the Convention;
- promote exchange of information on measures to mitigate climate change;
- facilitate co-ordination of measures between Parties;
- promote the refinement of methodologies for inventories and evaluating mitigation measures;
- assess the implementation of the Convention, and make recommendations;
- mobilise financial resources to implement the Convention;
- agree on rules of procedure by consensus;
- allow international organisations, and other governmental and non-governmental organisations to participate as observers

Article 8 establishes the ***Secretariat*** to make arrangements for COPs, collect and distribute information, assist with communication of information on implementation, prepare reports and co-ordinate with other Conventions.

The two main subsidiary bodies – ***Subsidiary Body for Scientific and Technological Advice (SBSTA)*** and ***Subsidiary Body for Implementation (SBI)*** – are established in Articles 9 and 10. The role of SBSTA is to provide an assessment of scientific knowledge about climate change and the effect of measures taken to implement the Convention. SBSTA also will identify relevant technologies and how to transfer them, provide advice on research programmes, and respond to technical questions from the COP and other bodies. The role of **SBI** is to monitor the information communicated about implementation of the Convention, to assess the aggregate effects of these measures, and carry out reviews of the adequacy of commitments. Both these bodies have representatives from all Parties to the Convention.

The ***Financial Mechanism of the Convention***, as specified in Article 11, provides financial resources on a grant or concessional basis, and should be governed by balanced representation from the Parties. The financial mechanism is to ensure that funding conforms with criteria laid down by the COP and to estimate the funding requirements for implementing the Convention. A permanent funding mechanism is to be decided within four years of the first COP. The interim funding mechanism (Article 21) is the Global Environmental Facility.

The COP was to decide on a multilateral consultative process to resolve questions about implementation of the Convention (Article 13) at its first session, but this decision has been postponed. Disputes can be raised under Article 14, however, and Parties may agree, upon ratification of the Convention, to the possibility of submitting their disputes to the International Court of Justice or another arbitration mechanism decided by the COP. They are not required to agree to this, and can withdraw their agreement at a later date. A conciliation commission can also be created at the request of a Party, with representation from each sides of the dispute, and Parties undertake to carry out the judgements in good faith.

International legal requirements

Articles 15 through 26 lay out the international legal framework for amending, updating, and bringing the Convention into force. All decisions should be made by consensus wherever possible, but, failing that, amendments to the Convention and the Annexes can be made by three fourths vote (Article 15 and 16). Parties can choose not to accept new Annexes and amendments to Annexes. Protocols may be adopted by the COP at any ordinary session (Article 17). Each Party has one vote in all decisions, except where a regional economic integration organisation votes as a bloc, in which case they have as many votes as they have member states (Article 18).

Article 21 established an interim secretariat and designated the Global Environmental Facility as the interim financial mechanism.

The Convention was open for signature from June 1992 to June 1993, and thereafter opened for ratification, with Parties depositing their instruments of ratification

with the Secretary-General of the United Nations (Articles 20, 22). The Convention enters into force 90 days after the fiftieth country has ratified (Article 23). From three years after entry into force, any Party may withdraw from the Convention with one year's notice (Article 25).

Annex I

Australia
Austria
Belarus
Belgium
Bulgaria
Canada
Czechoslovakia
Denmark
European Economic Community
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Japan
Latvia
Lithuania
Luxembourg
Netherlands
New Zealand
Norway
Poland
Portugal
Romania
Russian Federation
Spain
Sweden
Switzerland
Turkey
Ukraine
United Kingdom
United States of America

Annex II

Australia
Austria
Belgium
Canada
Denmark
European Economic Community
Finland
France
Germany
Greece
Iceland
Ireland
Italy
Japan
Luxembourg
Netherlands
New Zealand
Norway
Portugal
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States of America

The Kyoto Protocol to the United Nations Framework Convention on Climate Change: An overview

This document provides an overview of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (FCCC). The Protocol was adopted at the close of the third Conference of the Parties to the FCCC in Kyoto, Japan in December 1997. Rather than discussing every article, the sections below focus on highlights and groups similar articles together.[1] The full text of the Protocol is available from the FCCC web site.

Policies and measures

After brief opening provisions, Article 2 elaborates the policies and measures that Parties to the Protocol may use to implement the provisions of the Protocol. This list is not compulsory or exhaustive, but includes a range of domestic actions, and encourages co-operation. These policies must minimise the adverse impacts of climate change, especially on developing countries and countries affected by implementation of the provisions of the Convention (e.g. fossil fuel exporting countries).

Commitments

The heart of the Kyoto Protocol is Article 3, which outlines the legally binding commitments of Parties.

Commitment period and reduction targets (3.1-3.2, 3.7) Annex B countries (those with reduction commitments, essentially the same as Annex I)[2] agreed to reduce emissions by at least 5% overall compared to 1990 by the commitment period of 2008-2012. The average emissions over those five years will be compared to the targets, rather than only looking at one year. Parties must have made 'demonstrable progress' by 2005, although the meaning of this phrase is not clearly elaborated.

Coverage of gases, baselines and sinks (3.1, 3.3-3.6) Emissions reduction commitments in Article 3.1 focus on 6 GHGs (CO_2, CH_4, N_2O, Sf_6, HFCs and PFCs), with 1990 baselines for the first three and 1995 baselines for the last three. The use of sinks as credits against emissions targets is restricted to only those human-induced land use change and forestry activities that can be verifiably measured during the commitment period. A process is also initiated to bring more sinks into the basket for the second commitment period. This is one of the most complex areas of the Protocol, and will be developed following an IPCC special report on sinks. Articles 3.5 and 3.6 reaffirm the possibility of flexibility in baselines and implementation for countries with economies in transition.

Differentiated assigned amounts (Annex B, 3.7) A central feature of the Kyoto Protocol is the differentiated targets for Annex I countries. The US, Europe and Japan have targets of –7%, -8% and –6%, respectively. Some countries are actually allowed increases (e.g. Australia +8%) while others are only required to stabilise (e.g. Russia, Ukraine, New Zealand).

Future commitments (3.9) A review of commit-ments must be carried out at least seven years before the end of the first commitment period (e.g. 2005) to strengthen commitments. Note that if countries have surplus emissions at the end of the first commitment period (very likely for Russia and Ukraine), they can 'bank' those for the next commitment period (Article 3.13).

Minimising adverse impacts on developing countries (3.14) Annex I parties should implement commitments so as to minimise adverse impacts on countries mentioned in Articles 4.8 and 4.9 of the FCCC, particularly the least developed countries

Flexibility mechanisms

Three explicit flexibility mechanisms are established under the convention. In addition, the provision for 'bubbling' provides flexibility for countries to reassign

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1 This discussion draws heavily on Yamin, F 1998. The Kyoto Protocol: Origins, assessment and future challenges. *RECIEL* 7(2). Pp. 113-127.

2 Annex B has five additional countries: Croatia, Liechtenstein, Monaco, Slovakia and Slovenia. In addition, Turkey is not in Annex B, but is in Annex I to the FCCC.

their targets as a group. The mechanisms are referred to in Articles 3.10-12 as means of meeting the legally binding commitments. The rules and modalities of all of these mechanisms must still be negotiated by the COP. A summary of some of the key differences in the mechanisms is provide in Table 1.

Bubbling (Article 4) allows Parties to fulfil their commitments jointly, so that the EU was able to have internal negotiations on burden sharing so long as the total EU emissions do not exceed the combined targets of its members. Parties must inform that Secretariat of their intention to create a bubble when they ratify the Protocol.

Emissions trading (Article 17) allows Annex B countries to trade surplus emissions during the commitment period if they have exceeded their commitments. Emissions trading should be supplemental to domestic action, but no definition of this is provided.

Joint implementation (Article 6) allows Annex I countries to meet their emissions reduction commitment with 'emissions reduction units' from projects that reduce GHG emissions or enhance sinks in other Annex I countries. Such projects must be approved by both Parties, and must lead to emissions reductions that would not otherwise have occurred. JI must also be supplemental to domestic action, and can only occur between Parties that have fulfilled their other commitments to the Convention (e.g. reporting).

Clean development mechanism (Article 12) allows Annex I parties to meet part of their emissions reduction commitments with 'certified emissions reductions' (CERs) from projects that reduce GHG emissions or enhance sinks in developing countries – those that do not have any quantified commitments under the Protocol. The objective of the CDM, in contrast to the other mechanisms, is both to contribute to sustainable development as well as to assist in emissions reductions. The Protocol does not specify what share of commitments can be met through the CDM (or any other flexible mechanism). The CDM will be supervised by an executive board, which could assist in arranging funding for project activities, while 'operational entities' will certify emissions reductions. CERs before 2008 can be 'banked' – ie accumulated to apply against the first commitment period. No other flexible mechanism allows banking. CDM project activities will also pay a levy to an adaptation fund, which will help to support adaptation in those countries most vulnerable to the effects of climate change.

Developing country commitments

Article 10 elaborates commitments by all Parties, including developing countries, but does not add significantly to the commitments laid out in Article 4.1 of the FCCC. The text reaffirms common but differentiated responsibilities and that these are not new commitments, but rather extensions of existing commitments. All of these commitments must be implemented with consideration for what is required to help developing countries, particularly the most vulnerable countries. These commitments include:

- improving data on local emissions factors and models to update national GHG inventories;
- formulating and communicating programmes to mitigate climate change and promote adaptation – although developing countries are not required to implement these activities;
- co-operating in transferring environmentally sound technologies to developing countries;
- co-operating in scientific research and observation; and
- co-operating in education and training programmes.

In addition, Article 11 confirms the principle that Annex I Parties must provide new and additional funding so that developing countries can implement their commitments. This includes the ***agreed full costs*** of Article 10.1a related to national communications and the ***agreed full incremental costs*** of commitments under Article 4.1 of the FCCC.

Institutional arrangements

Institutional arrangements largely build on the FCCC. The Protocol uses the same Secretariat and Subsidiary Bodies (Articles 14 and 15) as the FCCC, for example. The Meeting of the Parties (moP) to the Protocol

would be handled by the FCCC COP, rather than having a new body, although decisions about the Protocol during this meeting can only be taken by Parties to the Protocol (ie those that have ratified the Protocol) (Article 13). This meeting is called the COP/moP.

Methodological issues

Article 5 refers to methodological issues for calculating national GHG inventories, to be established at the first COP/moP. Because the emissions reduction targets are for a basket of gases, the global warming potentials (GWPs) used to convert emissions into carbon dioxide equivalents are critical. For the first commitment period, the IPCC guidelines accepted in 1997 will be used, although these may be updated for future commitment periods.

Communication

Annex I Parties must submit additional information in their national communication to verify compliance with Article 3 of the Protocol (Article 7). Guidelines for this information must be formulated by the COP/moP. Article 8 calls for an expert review of national communications from Annex I Parties, particularly the information relevant to ensure compliance with the Convention. Expert teams would carry out these reviews as they did for the reviews of communications under the Convention. Note that this process does not apply to communications from developing countries (non-Annex I Parties).

Dispute resolution and non-compliance

Articles 16 and 18 form the legal basis for addressing non-compliance issues. They give the first COP/moP a clear mandate to approve, at its first session appropriate and effective measures to address non-compliance. This process may build the development of a multilateral consultative process under Article 13 on the FCCC, which has still not been completed.

Review of adequacy of commitments

Article 9 requires that the COP/moP periodically review the adequacy of commitments in the Protocol, given that the commitments in Annex B will not come close to achieving the overall objective of the FCCC. These reviews will be based on the best available scientific information. The first review will take place at COP 5 in 1999.

International legal issues

As with the UNFCCC, the later Articles of the Protocol lay out the international legal framework for amending, updating, and bringing the Convention into force. All decisions should be made by consensus wherever possible, but failing that, amendments to the Protocol and the Annexes can be made by three-fourths vote (Article 20 and 21). Annex B can only be amended with the explicit consent of the Party concerned. Parties can choose not to accept amendments if they notify the Secretariat. Each Party has one vote in all decisions, except where a regional economic integration organisation votes as a bloc, in which case they have as many votes as they have member states (Article 22).

The Protocol was open for signature from March 1998 to March 1999, and thereafter opened for ratification, with Parties depositing their instruments of ratification with the Secretary-General of the United Nations (Articles 23, 24).

The Protocol enters into force 90 days after the fiftieth country has ratified, as long as the Parties that have ratified account for 55% of total Annex I carbon dioxide emissions for 1990 (Article 25). This means that the US (36% of 1990 emissions) and Russia (17.4%), for example, could veto the Protocol.

		Bubbling	*JI*	*CDM*	*ET*
Criteria	Credit Unit	Assigned amounts	Emissions reduction units	Certified Emissions Reductions	Assigned amounts
	Objectives	Meet joint commitments	Emissions reductions	Sustainable development & emissions reductions	Emissions reductions
	Parties	Annex B	Annex I	All	Annex B
Consistency	Implementation	Multilateral	Bilateral	Bilateral & multilateral	?
	Banking	No	No	Yes	No
	Sinks	N/a	Yes	No	N/a
	Adaptation levy	No	No	Yes	No

Table 1. Comparison of flexibility mechanisms

Annex B

Party	*Quantified emissions limitation or reduction commitment (% of base year or period)*	*Party*	*Quantified emissions limitation or reduction commitment (% of base year or period)*
Australia	108	Latvia	92
Austria	92	Liechtenstein	92
Belgium	92	Lithuania	92
Bulgaria	92	Luxembourg	92
Canada	94	Monaco	92
Croatia	95	Netherlands	92
Czech Republic	92	New Zealand	100
Denmark	92	Norway	101
Estonia	92	Poland	94
European EC	92	Portugal	92
Finland	92	Romania	92
France	92	Russian Fed.	100
Germany	92	Slovakia	92
Greece	92	Spain	92
Hungary	94	Sweden	92
Iceland	110	Switzerland	92
Ireland	92	Ukraine	100
Italy	92	United Kingdom	92
Japan	94	USA	93

The United Nations process

This document provides an overview of the process that produced both the UN Framework Convention on Climate Change (FCCC) and the Kyoto Protocol. While the process has a relatively short history (the Framework Convention was negotiated in 15 months, and the Kyoto Protocol was negotiated in only a slightly longer timeframe) there were events that preceded the negotiations which have had a lasting impact on the climate change negotiating process.

This document also looks at some of the key issues and themes that have developed under the climate change negotiations and that will be dealt with in the years to come.

Developing consensus for action

Environmental issues first gained international prominence at the 1972 UN Conference on Human Environment (UNCHE) held in Stockholm, Sweden. Up until that time there were no international arenas in which countries could raise environmental issues. Following the UNCHE, the scientific community began to place more emphasis on international environmental issues, including climate change. As interest in and scientific data on climate change increased, policy-makers also began to focus on this issue.

In the case of the FCCC, there were many contributing factors leading up to the signing of the Convention at the UN Conference on Environment and Development (UNCED) in Rio de Janiero, Brazil in 1992. Listed below are only a few highlights:

- The UN Environment Programme (UNEP) was created at the UNCHE.
- In 1979, the World Meteorological Organisation held a World Climate Conference. This was one of the first scientific conferences that looked at climate change as a serious environmental problem. It issued a declaration calling on the world's governments *'to foresee and prevent potential man-made changes in climate that might be adverse to the well-being of humanity'*.
- In 1983, the UN General Assembly (UNGA) established the World Commission on Environment and Development. This led to the 1987 report 'Our Common Future', more commonly known as the *Brundtland Report*. This report developed the theme of sustainable development, which 'meets the needs of the present generation without compromising the ability of future generations to meet their own needs.'
- In 1988, the WMO and UNEP established the Intergovernmental Panel on Climate Change (IPCC) to develop a coordinated scientific assessment of the problem and possible responses. In 1990, it produced the report 'Climate change: The IPCC scientific assessment.'
- In 1988, the UNGA adopted a resolution recognising climate change as a 'common concern of mankind.' It also endorsed the establishment of the IPCC.
- In 1989, the UNGA decided to convene the UN Conference on Environment and Development, giving climate change a high priority. UNGA Resolution 44/207 also highlighted concerns of developing countries and of low-lying island states.
- The Second World Climate Conference was held in 1990, and called for a framework treaty on climate change. Although international targets were discussed, no agreement was reached. There was general support for principles, many of which were later included in the FCCC. These included: climate change as a common concern of humankind; the importance of equity; the common but differentiated responsibilities of countries at different levels of development; sustainable development; and the precautionary principle that lack of full scientific certainty should not be used as an excuse to postpone action when there is a threat of serious or irreversible damage.
- The Alliance of Small Island States was formed at this conference.
- In 1990, the UNGA adopted a resolution establishing the Intergovernmental Negot-

iating Committee (INC) to negotiate a convention on climate change. This negotiation was to be completed in time for a Convention to be signed at the UNCED in June 1992.

- The FCCC was adopted in May 1992.

In June 1992, the UNCED was convened in Rio de Janeiro, Brazil. One hundred and seventy eight countries attended the conference, as did more than 100 heads of state and more than 1 000 non-governmental organisations (NGOs). In addition to the FCCC, four major instruments were signed at UNCED:

- the Rio Declaration (a statement of principles);
- Agenda 21 (a document identifying priority actions and guidelines for their achievement, it also created the Commission on Sustainable Development);
- a Framework Convention on Biological Diversity (CBD); and
- a Statement of Principles on Forests.

The UN negotiating process

International environmental agreements are generally negotiated through intergovernmental negotiating committees (INC). INCs have either been under the auspices of the UN General Assembly or the UN Environment Programme (UNEP). For example, although the FCCC and CBD were both signed at the UNCED, they went through separate negotiating processes. The FCCC was negotiated through an INC established by the UNGA, and relied on the work of the IPCC. The CBD was negotiated through an INC that subsumed the UNEP Ad hoc Working Group on Biological Diversity.

UN Conventions: Climate Change and Desertification.

UNEP Conventions: Basel, Biodiversity, CITES, Migratory Species, and the Montreal Protocol

The INC/FCCC negotiating process

In 1990, the UNEP and WMO established an intergovernmental working group in response to calls from numerous international conferences for a treaty on climate change. At the first meeting of the group, they called for the negotiations to take place under a single forum. At the same time, some developing countries were concerned that a negotiating forum under the auspices of the UNEP and WMO might limit their participation and focus on purely technical issues. Developing countries felt that the treaty should consider environment and development equally. The UNGA responded by placing the INC under its auspices (UNGA resolution 45/212). The INC for a Framework Convention on Climate Change was to complete negotiations in time for a signing at the UNCED.

Between February 1991 and May 1992, five INC sessions were held, culminating in the FCCC's adoption on 9 May 1992. Some 150 states and numerous intergovernmental and non-governmental organizations participated in these sessions. The IPCCs First Assessment Report served as the scientific basis for the INC's work, as did products from international meetings such as the Second World Climate Conference. At the INC's first session, two working groups were established. The groups met in parallel and submitted draft treaty elements to the plenary. Working Group I focused on issues relating to commitments (limiting and reducing greenhouse gas emissions; protecting and enhancing sinks and reservoirs; financial mechanisms; technology transfer; and 'common but differentiated' responsibilities of developed and developing countries). Working Group II focused on legal and institutional mechanisms.

There was disagreement on many issues. One key issue was how binding commitments should be dealt with, and therefore how the agreement should be structured. There were two basic models that the negotiators considered. The first was a framework that dealt with issues comprehensively (including specific targets and timetables) and the second was a step-by-step approach whereby a framework agreement with general obligations could be followed up by a more comprehensive protocol or other legal instrument. Because negotiations of a comprehensive agreement could prove to be difficult and would likely limit participation (by countries choosing not to ratify), the INC chose to produce a consensus document.

The FCCC was signed by 154 states (plus the EC) at the Earth Summit in Rio de Janeiro in June 1992. The Convention entered into force on 21 March 1993, 90 days after the receipt of the 50th instrument of ratification (after signing a convention a state must also ratify in order to become a Party to the agreement).

Following adoption of the Convention, and up until the first Conference of the Parties (COP), the INC continued to meet. The purpose of these interim sessions was to make progress on unresolved issues, elaborate and implement the reporting and review processes and consider next steps beyond the FCCC.

Six sessions of the INC were held between March 1993 and February 1995. At INC 6, negotiators identified tasks that were specified in the Convention for which some type of action was needed by the COP at its first session. INC 6 also decided that these tasks would form a large part of its work in preparing for COP 1.

The next five INC sessions (INC 7-11) began working on the issues identified by INC 6. These included:

- designing methodologies for calculations and inventories of emissions and removals of greenhouse gases;
- implementing Article 11 (the Financial Mechanism) and the interim arrangements under Article 21.3 (the Global Environment Facility as the interim financial mechanism);
- preparing for the first review of information communicated by Annex I Parties;
- designing criteria for joint implementation;
- designing rules of procedure of the COP and subsidiary bodies;
- preparing for the review of the adequacy of developed country commitments contained in Article 4.2(a) and (b); and
- designing provisions for a permanent Secretariat.

Following the tenth session of the INC, AOSIS submitted a draft protocol that called for at least a 20% reduction in CO_2 emissions by the year 2005 by Annex I Parties.

The negotiating process under the Convention

The COP is the supreme decision-making body of a Convention and is comprised of all states that have ratified it. The specific function of the COP may vary from Convention to Convention depending on the issues covered.

The COP of the FCCC is responsible for the regular review of the implementation of the Convention and for taking necessary decisions, within its mandate to promote the effective implementation of the Convention. It is to meet annually, unless otherwise decided by the Parties.

In the case of the Kyoto Protocol, it is the Conference of the Parties serving as the meeting of the Parties (COP/moP) that is the supreme decision-making body. The distinction between the two is that Parties to the COP that are not Parties to the Protocol can only participate as observers, and that decisions under the Protocol are taken only by Parties to the Protocol.

> Other Protocols, such as the Montreal Protocol on Substances that Deplete the Ozone Layer, have established the Meeting of the Parties (moP) as the supreme decision-making body. There is not substantive difference, however, between a moP and COP.

Most environmental agreements provide the COP the ability to establish any subsidiary bodies it may deem necessary to assist it in carrying out its duties. Some Conventions have chosen to have working groups instead of subsidiary bodies. As with the moP and COP, there is not necessarily a substantive difference between a subsidiary body and a working group. The number of subsidiary bodies and their functions vary by agreement.

The FCCC established two permanent subsidiary bodies:

- ***The Subsidiary Body for Scientific and Technological Advice*** (SBSTA) (FCCC Article 9)

Its primary function is to provide timely information and advice on scientific and technological matters related to the Convention. Issues covered by SBSTA include development and transfer of

technology, research and systematic observation, and land-use change and forestry.

- ***The Subsidiary Body for Implementation*** (SBI)

Article 10 of the FCCC states that the SBI is to 'assist the Conference of the Parties in the assessment and review of the effective implementation of the Convention'. Issues covered by SBI include national communications, the review of the adequacy of commitments, and administrative and financial matters. Some issues, such as the AIJ pilot phase and the Kyoto mechanisms have been allocated to both SBI and SBSTA.

Article 7.2(i) of the FCCC allows the COP to establish other subsidiary bodies 'as are deemed necessary for the implementation of the Convention'. To date, two additional bodies have been established: the Ad Hoc Group on the Berlin Mandate (AGBM) and the Ad Hoc Group on Article 13 (AG-13). The AGBM was tasked with negotiating a protocol or other type of legal instrument. The AG-13 was tasked with studying issues related to the establishment of a multilateral consultative process. The AGBM expired once the negotiations for the Kyoto Protocol were completed.

The financial mechanism

In order to assist developing countries in implementing the Convention, a financial mechanism was established (Article 11). As stated in the Article, the financial mechanism is to provide 'financial resources on a grant or concessional basis, including for the transfer of technology' to developing countries. Its role is to transfer funds and technology to developing countries. The financial mechanism is guided by and accountable to the COP, which decides its policies, program priorities and eligibility criteria.

The financial mechanism has been a major area of contention throughout the climate negotiations. During the early INC negotiations, most developed countries wanted to give the Global Environment Facility the responsibility for the financial mechanism. The GEF was launched in 1990 with the World Bank, the United Nations Development Programme (UNDP), and UNEP as the implementing agencies. The funds available through the GEF are based on voluntary contributions from OECD countries. Developing countries had concerns about using the GEF as the financial mechanism since it was dominated by donor countries at that time. The GEF was chosen as an interim financial mechanism, and was restructured in 1994 to address non-Annex I country concerns. Projects funded by the GEF should be cost-effective, support national development priorities and focus on enabling activities.

Issues and themes

The Convention sets out several general principles. These include the importance of promoting sustainable development, the special needs of developing countries, the 'precautionary principle' that says the lack of full scientific certainty should not be used as an excuse to postpone action, the principle of 'common but differentiated responsibilities', and the principle of 'equity'.

- ***Equity:***

The issue of equity has been present throughout the climate change debate. During the UNCED and early INC processes, developing countries felt that development must be given equal consideration to the environment, particularly given the different levels of industrialization. Equity is imbedded in several principles under the Convention. Because historical and current emissions originate from industrialised countries, these countries have a large share of the responsibility for addressing climate change. The Convention also recognises the right of less-industrialised countries to economic development, and acknowledges the vulnerability of these countries to the effects of climate change.

- ***Common but differentiated responsibilities:***

All Parties have some common commitments under the Convention. These mainly pertain to reporting requirements for national communications and greenhouse gas inventories. Other commitments include adoption of national programmes for mitigating climate change and development of strategies for adapting to its impacts. The Convention recognises, however, that industrialised countries have been predominantly responsible for human-

induced climate change, and that they are in a better position to take action. Therefore, industrialised countries listed in Annex I of the FCCC are committed to adopting policies and measures aimed at returning their greenhouse gas emissions to 1990 levels by the year 2000. Annex II countries, mainly those in the OECD (excluding Mexico and Korea) are to provide new and additional financial resources and facilitate technology transfer.

The concepts of Joint Implementation and Emissions Trading were introduced by and of great interest to Annex I countries. Joint Implementation is provided for in the Convention, while emissions trading was introduced during the process leading up to Kyoto.

- ***Joint Implementation:***

Article 4.2(a) of the Convention states that Parties 'may implement such policies and measures jointly with other Parties and may assist other Parties in contributing to the achievement of the objective of the Convention'. Article 4.2(b) contains a reference to the aim of returning GHG emissions to 1990 levels either 'individually or jointly'. Taken together, this is the basis for joint implementation under the Convention. There was a great deal of debate about whether non-Annex I countries could or should participate. Generally, Annex I countries felt that projects could be undertaken jointly by Annex I and non-Annex I countries. Non-Annex I countries felt that the concept did not apply to them. The concept of crediting emissions reduced or sequestered from these projects also caused a great deal of concern since only Annex I countries were obligated to try to reduce their emissions to 1990 levels by the year 2000. Another major concern for non-Annex I countries was that joint implementation would reduce the amount of funds available for development assistance. During COP 1, a compromise was reached in which the pilot phase Activities Implemented Jointly was launched. It allowed for non-Annex I participation on a voluntary basis, with no crediting, and that funds would have to be additional to ODA.

- ***Emissions trading:***

This was introduced by the United States during the AGBM process. During COP 2, the US stated that flexibility instruments (meaning the market-based mechanisms that were later incorporated into the Kyoto Protocol) were a prerequisite for accepting binding commitments. These mechanisms were based on the principle that 'policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost' (Article 3.3). Under an international trading system, a country (or firm) would be able to meet its emissions reduction target by reducing pollution itself, purchasing reductions from another country (or firm) that was able to achieve excess gains, or some combination of both. This concept faced strong opposition by some developing countries and environmental organisations. They were concerned that emissions trading would be used as a way for industrialised countries, particularly the US, to buy their way out of meeting their commitment instead of taking actions at home. Many Annex I Parties initially responded with caution since there is very little international experience with emissions trading.

Highlights from the Conference of the Parties

The Conference of the Parties at its first session responded to a review of the adequacy of developed country commitments by issuing the *Berlin Mandate*. Most Parties agreed that the commitments contained in the FCCC were not adequate, and that negotiations should begin on a Protocol or type of other legal instrument. The Berlin Mandate called on Parties to conclude negotiations of a legal instrument in time for adoption at the third session of the COP. The Mandate set as a priority the establishment of quantified emissions reductions and limitation objectives (or targets) within a specified timeframe for Annex I Parties. The new instrument was also to reaffirm existing commitments for all Parties while not introducing new commitments for non-Annex I Parties.

> The Berlin Mandate also established an open-ended working group to negotiate the new instrument, the Ad Hoc Group on the Berlin Mandate (AGBM).

COP 1 aimed to address criteria for joint implementation. This had been a highly

controversial concept throughout the negotiating process. As a compromise, Activities Implemented Jointly under the pilot phase was established (see issues and themes for more information).

The IPCC's Second Assessment Report was released in late 1995. It concluded that the balance of evidence suggests that there is a discernible human influence on global climate.

COP 2 issued the Geneva Declaration. Although somewhat controversial, most countries supported the Declaration. The Declaration strongly endorsed the conclusion of the IPCC's Second Assessment Report, accepted the IPCC's assertion that the continued rise in atmospheric concentrations of heat-trapping gases 'will lead to dangerous interference with the climate system', and called on negotiators to complete a binding protocol that included binding targets and timetables.

In December 1997, the third session of the COP met and reached agreement on the Kyoto Protocol. The Protocol includes an overall emissions target of at least 5% for developed nations, with individual countries taking on different binding targets based on their economic and national situations, i.e., 8% below 1990 emissions levels for the European Union; 7% for the United States; and 6% for Japan. The Protocol also includes market-based measures – the Kyoto mechanisms of international emissions trading (Article 17), Article 6 on project-based activities between developed countries (Joint Implementation) and the Clean Development Mechanism (Article 12).

The fourth session of the COP focused on issues related to strengthening the implementation of the Convention and preparing for the entry into force of the Kyoto Protocol. Parties adopted the Buenos Aires Plan of Action which focused on the Financial Mechanism, technology transfer and development, implementation of Article 4.8 and 4.9 of the Convention, the review process of the AIJ pilot phase, and the mechanisms of the Kyoto Protocol. Other developments at COP-4 included the announcement by Argentina and Kazakhstan of their willingness to take on voluntary commitments to limit their emissions.

Implications of climate change and international climate change agreements for South Africa

Background

Human-induced climate change arose as an issue of international concern in the early 1970s. A series of conferences and research reports highlighted the significance of the potential problem, prompting an international response to the issue of climate change. In 1988 the Intergovernmental Panel on Climate Change (IPCC) was established to develop a scientific assessment of the problem and possible responses. While there is a level of uncertainty around the extent of human-induced climate change, the IPCC concluded that the balance of evidence suggests a discernible human influence on global climate.

Human-induced climate change could adversely affect economies and the impacts are likely to vary on a regional basis. Africa, for example, could face a range of threats, including more frequent and extreme floods and landslides, strong winds, droughts, tidal waves, the spread of malaria, destruction of wild life and disrupted water supplies and agriculture. Many physical and ecological systems are likely to be simultaneously affected, thereby slowing the ability of ecological systems to replenish naturally.

For South Africa, climate change models predict an increase in mean air temperature. The magnitude of the increase is, however, uncertain, with estimates ranging between a 1°C and 3.5°C increase over the next century, with 2°C most likely. The temperature increase is expected to be greater at night than during the day and greater in winter than in summer. It is likely that the average rainfall will change, but it could increase in some parts of the country, and decrease in other parts: there is an indication that areas in the interior (such as the Highveld and Kalahari Basin) may become drier. The winter rainfall region of the southern and western Cape could get more summer rain.

In response to the growing international concern with regard to the possible impacts of climate change, the United Nations Framework Convention (UNFCCC) was negotiated and finally adopted in 1992.

The fourth session of the Conference of the Parties (COP4) to the UNFCCC held in Buenos Aires in November 1998 is one of a series of UNFCCC COPs held since 1995. The Buenos Aires meeting, in particular, built on the Kyoto Protocol adopted in December 1997 in Japan. The Kyoto Protocol represented the first step in an effort to cut down human-induced greenhouse gas concentrations in the atmosphere. Under the Kyoto Protocol, 38 industrialised countries agreed to legally binding commitments to reduce their emissions to, on average, 5% below 1990 levels by the year 2012.

South Africa became a signatory to the UNFCCC in June 1993. After a series of delays, ratification of the Convention took place in August 1997. Administration of the UNFCCC in South Africa is the responsibility of the Department of Environment and Tourism (DEAT), but the effects of climate change and climate change response measures are felt in a range of different economic sectors and, therefore, co-operation between government departments is required.

Prior to ratification of the Convention, the South African government was able to participate in the international climate change only negotiations as an observer. South Africa's active involvement in the negotiations has, therefore, been relatively short and its progression in terms of investigating the implications of climate change and climate change response measures relatively limited. The South African Country Studies Programme should shed new light on the vulnerability of South Africa to climate change and is expected to be completed in 1999.

International agreements on climate change (the UNFCCC and the Kyoto Protocol) create an opportunity for South Africa to cooperate with other countries to mitigate climate greenhouse gas emissions through joint projects. Climate change joint projects could bring investment opportunities that, if correctly framed, could positively affect the economy.

South Africa must be proactive in climate change debates

Decisions and agreements taken in international meetings such as the Conference of the Parties to the FCCC have far-reaching consequences for both Annex I and non-Annex I nations.

South Africa forms part of the African regional block that contributes around 3% of the global emissions, an almost negligible share. However, South Africa is by far the largest emitter of CO_2 in Africa, as it is an energy-intensive economy which relies heavily on coal for energy production.

Although South Africa is unlikely to be faced with binding commitments to reduce its emissions of GHGs in the near future, if differentiation is made within the non-Annex I (developing) country category in the future, it is not improbable that South Africa could face some intermediate targets by virtue of its relatively high levels of income and emissions. Thus it is important that South African policy making takes explicit account of the climate change issue and adopts a proactive stance in international negotiations.

As a signatory to the UNFCCC and a non-Annex I Party, South Africa can participate in joint climate change projects which work toward achieving sustainable development.

South Africa could play a leading role in climate change issues in Africa. To achieve this, it first needs to build capacity within government to understand the climate change negotiations and key issues and to implement climate change policy. South Africa should seize the opportunity for *no-regrets* options to combat climate change threats: options which are economically viable and beneficial to the country irrespective of whether climate change is a reality, and irrespective of the outcome of the climate change negotiations. Such an undertaking could benefit South Africa immensely for future readiness and possible commitments to GHG emission reduction.

Vulnerability to the impacts of climate change[3]

> With the growth in atmospheric concentrations of greenhouse gases, interference with the climate system will grow in magnitude, and the likelihood of adverse impacts from climate change that could be judged dangerous will become greater. (IPCC 1995)

The most vulnerable ecological and socio-economic systems are those with the greatest sensitivity to climate change and the least ability to adapt. *Sensitivity* is the degree to which a system will respond to a change in climatic conditions and *adaptability* is the degree to which systems can adjust in response to, or in anticipation of, changed conditions. *Vulnerability* defines the extent to which climate change may damage or harm a system and is dependent not only on the systems sensitivity, but on its ability to adapt.

Socio-economic systems tend to be more vulnerable in developing countries with weaker economies and institutions. It follows that developing countries are likely to be the hardest hit economically by climate change.

South Africa's vulnerability to climate change can be partially gauged by analysing the way in which people have responded to unaccustomed weather conditions in the past. Drought, for example, had serious impacts on South Africa's staple food supply industry in the early 1980s. Other climatic events, such as tornadoes, floods and storms, have also had serious socio-economic impacts, particularly in poorer communities. Going by responses to climate-related crises in the past, it can be concluded that the impacts of climate change on South Africa might be significant.

The challenge for policy-makers is to formulate appropriate and cost-effective strategies at a time when the scientific methodology of ascertaining and accurately modeling climate change impacts is still in its embryonic stage. In South Africa, there is currently a lack of data to determine the real impacts of climate change, although

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[3] This section relies heavily on two main sources: IPCC (1995) *IPCC Second Assessment: Climate Change 1995* and DEAT (1998) Climate Change Policy Discussion Document.

international models indicate that southern Africa could be one of the hardest hit regions.

An assessment of the impact of natural events occurring in South Africa will aid us in determining the most vulnerable groups and sectors in South Africa, which in turn will make it easier to find adaptation strategies and policies to reduce the impacts of future weather events resulting from climate change.

Given the limited data on the impacts of climate change, South Africa's Climate Change Policy Discussion Document identifies the following as the most important areas for concern: agriculture and forestry, water resources, health, the coastal zone and biodiversity.

Agricultural and pastoral sectors

As projections on regional climate change are still uncertain, so too are projections of the resulting agricultural and pastoral impacts.

While global agricultural production is expected to be maintained relative to predicted baseline levels over the next 100 years, IPCC analysis suggests that the impact on productivity and crop yields will vary considerably between regions, with some agricultural regions being threatened by climate change and others benefiting.

The IPCC identify the following potential threats and advantages of climate change:

- Both evaporation and precipitation will increase, as will the frequency of intense rainfalls. While some regions might become wetter, in others the net effect of an intensified hydrological cycle will be a loss of soil moisture. Some regions that are already drought prone may suffer longer and more severe dry spells.
- Some crops might be damaged by higher temperatures, particularly if water shortages obtain.
- Insects and plant diseases may expand polewards, adding to the risk of crop loss.
- The increase in CO_2 which, in part, causes climate change, may stimulate growth in certain plants, such as wheat, barley, cassava and potato; and make them more water-efficient. This effect could be enhanced or reduced by accompanying changes in temperature, precipitation, pests and the availability of nutrients. The effect will not be as dramatic in other plants, such as maize, sugar cane, sorghum and millet, pasturage and forage grasses.
- The effects of climate change on marine fisheries will be felt at the national and local levels as people respond to the change in species-mix by relocating fisheries.

Although agriculture is not South Africa's largest economic sector, it is important. Despite two-thirds of the country falling below the rainfall limit for reliable wheat and maize crops, South Africa is self-sufficient in food, except during periods of widespread drought. On a national level, it is estimated that a 10% increase in rainfall coupled with an increase in CO_2 would lead to a 10-20% increase in wheat and maize production, while a 10% decrease in rainfall would be approximately balanced by the rising CO_2 content of the atmosphere. Slightly warmer temperatures may lead to a small reduction in wheat yields, but would have little effect on maize. These predictions are, however, not certain and do not take into account the local impacts of climate change in the different regions of the country.

Some regions and groups are likely to be more vulnerable to climate change than others. Particularly vulnerable are those, predominantly the poor, who practice subsistence farming. Subsistence farmers are often farming already marginal land and are slow to adapt to changes because they lack the resources to do so.

The impacts of El Niño have been felt in South Africa in recent years. Within scientific and meteorology circles, there are concerns that global warming could lead to a stronger and even more frequent El Niño effect. Bearing in mind the significant impact that this phenomenon had in the early 1980s in South Africa and many parts of Africa, the impact of climate change on South Africa may be more severe than expected.

IPCC scientific analysis suggests that the productivity of rangelands and pastures will also be affected by climate change. While intensively managed livestock systems are likely to adapt more easily to climate change than crop systems, the same may not be the case in pastoral systems, where communities tend to adopt new methods and technologies more slowly.

Much of South Africa, especially the drier parts, is used for grazing cattle, sheep and wildlife. Higher CO_2 will lead to less protein in the grass, which would reduce any benefit resulting from increased plant growth. Less rainfall would lead to proportionately less animal production.

Forestry

The impact of climate change will be experienced both in the commercial forestry sector and by those using wood for fuel. South Africa's climate already limits the extent of both its plantation and indigenous forests. Commercial plantations are further limited by the need to conserve water. The forestry industry could probably tolerate a small increase in temperature, but a decrease in rainfall would reduce the area which can support plantations, and the growth rate of trees. Rising carbon dioxide could, however, help reduce the amount of water used by pine and gum plantations.

Indigenous forests will also be susceptible to these climatic changes. Forest die-back due to drought, insects and disease may increase, especially in regions where rain becomes scarce.

An increase in summer droughts could also increase the risk of forest fires, especially where forests are already under stress from current human activities like slash-and-burns. At risk are recreational activities and wild life habitat.

Forest decline in South Africa's rural areas not only threatens biodiversity, but also energy security. Most rural communities still rely on biomass as their means of meeting their energy requirements, even after electrification.

Forests are also a source of medicines for many rural communities in South Africa and pressure on these valuable natural resources could, therefore, negatively impact these communities.

Water resources

IPCC analysis indicates that, on a global level, climate change will lead to more precipitation, but also more evaporation. While some regions are likely to receive increases and others decreases in precipitation, the complexity of the hydrological cycle makes it difficult to accurately predict the regional variations. The following threats to water resources are identified:

- Several climate change models suggest that downpours will become more intense in future. This will increase floods and run-off, but reduce infiltration.
- Changes in seasonal patterns of precipitation may affect the regional distribution of both ground and surface water supplies.
- Relatively small changes in temperature and precipitation could cause relative large changes in run-off and, therefore, arid and semi-arid regions will be particularly sensitive to reduced rainfall and to increased evaporation and plant transpiration.

South Africa's rainfall is patchy in distribution and variable from year to year, with much of the country being arid or semi-arid in nature. These areas are susceptible to both droughts and floods.

Even without climate change, South Africa is predicted to exhaust its surface water resources by early next century. A reduction in rainfall amount or reliability, or an increase in evaporation (due to higher temperatures) would make this situation worse. Increased evaporation could affect water supply and quality. Intensive rainfall could increase flood frequency and magnitude, affecting both crop yields and drinking water quality.

South Africa's industrial, domestic and agricultural users depend on a reliable water supply. The economic consequences of changing water availability will inevitably affect water pricing and crop production and thus need to be explored at both physical and policy levels. Water-supply infrastructure takes years to develop and is designed to last decades; water resource planners need to take into account the possibility of climate change when planning future infrastructure. This task is complicated by the fact that climate models are not able to accurately predict regional changes in precipitation.

There are limited wetlands in South Africa and such areas could be greatly affected if inland fresh water is threatened. At risk could be habitats of migratory birds and other species. Equally vulnerable are coastal wetlands as a result of sea level rise.

Health

The links between human health and climate change could be both direct and indirect. Possible direct health effects include cardiovascular and respiratory diseases, injuries, psychological disorders and deaths resulting from a greater intensity and duration of heat waves and floods, storms and other extreme climate events. Indirect health effects could include increased respiratory effects such as asthma, water-borne diseases and vector-borne diseases such as malaria. Studies have shown a clear relationship between allergen-producing organisms – such as plants, mould and house dust mites – and climatic factors such as humidity, temperature, rainfall and sunshine.

The geographic range and life-cycle of pathogens and vectors which transmit diseases are affected by climatic conditions. Climate change would, on aggregate, increase the potential transmission of many vector-borne diseases and potentially lead to increases in diseases such as malaria. Currently, malarial mosquitoes in South Africa are confined to the warm, moist parts. A small increase in the average temperature could allow malaria to spread, and increase the severity in areas where it already occurs. This has implications for health costs.

Climate change is likely to have greater health and economic impacts on developing nations than on rich ones. Two factors lead to this conclusion. First, communities in developing countries are forced to live on marginal land and lack capacity or resources to adapt to change. For example, flooding by the Mississippi river in 1993 brought few disruptions while a similar flooding incident in Kwazulu-Natal claimed a number of lives and caused massive disruptions in food supply, widespread disease and economic dislocation for some time. Rural communities with limited infrastructure (such as access roads) and resources are most vulnerable. If climate change increases the frequency of very hot days, the result might be increased cardiovascular and respiratory related deaths. More frequent occurrences of such incidences will incur costs for the health sector.

The coastal zone

As water in the oceans warms up it expands, resulting in an increase in mean sea level. This thermal expansion, together with an influx of fresh water from melting glaciers and ice, could result in a sea-level rise of between 15 and 95 centimetres by 2100. The rate and magnitude of the sea-level rise will vary locally and regionally in response to coastline features, changes in ocean currents and differences in tidal patterns and sea-water density. The following may result from sea-level rise:

- Coastal infrastructure, such as harbours, beach-front buildings and roads could be damaged.
- Key economic sectors, including fisheries, aquaculture, coastal agriculture and tourism, could be negatively affected.
- Increased flooding and erosion of estuaries, coastal dunes and beaches could occur.

While South Africa's coastline is relatively steep and, therefore, the consequences of a small sea-level rise is not expected to be extensive; areas already prone to flooding and tidal storm damage will be more susceptible if the sea-level rises.

Biodiversity

The climate changes resulting from human activities predicted for the next century are approximately of the same magnitude as the natural climate changes that accompanied the ice ages in the past. Human-induced climate change will, however, take place over a much shorter period of time. Plants, in particular, have trouble adapting to rapid changes in climate. South Africa has about 10% of the plant species in the world, half of these occur nowhere else. Warming, and a change in the season in which rain falls in the Cape Floral Kingdom, are issues of concern for the maintenance of this rich biodiversity. Human activity already threatens biodiversity – by, for example, fragmenting ecosystems and creating isolated populations which are less able to adapt. These isolated populations are most vulnerable to climate change and could become extinct as a result.

Impact of policies to mitigate climate change

As a non-Annex I Party to the UNFCCC, South Africa has, at present, no commitments to reduce its GHG emissions. The implementation of mitigation policies and measures in industrialised countries in an attempt to reach their Kyoto Protocol targets

could, however, have impacts on certain economic sectors, such as energy, mining, and transport in South Africa. Furthermore, as a non-Annex I Party to the Convention, South Africa can, through the Clean Development Mechanism (CDM), established by the Kyoto Protocol, enter into projects jointly with industrialised countries to reduce emissions. As the sectors which contribute most to local GHG emissions, energy, transport and mining are likely to be targeted for such joint activities.

Energy

The energy sector is the single largest source of greenhouse gases in most countries. It naturally follows that it would be the focus of GHG mitigation activities. South Africa is the eighteenth largest emitter of CO_2 in the world and by far the largest emitter of CO_2 in Africa. In South Africa, the energy sector accounts for 89% of total CO_2-equivalent emissions.

South Africa currently has relatively cheap electricity and coal which provides a national advantage in promoting economic growth. In an attempt to maintain the economic competitiveness of South Africa's industries and to make electricity affordable, Eskom is committed to reduce the real price of electricity by 15% between 1993 and 2000. In the short term, the competitive advantage afforded by cheap energy could be enhanced if South Africa's major international competitors are required to use more expensive energy sources which emit less GHGs. In the longer term, however, low energy prices encourage wasteful energy use, with attendant environmental impacts.

The impact on the energy sector of the international climate change agreements are three-fold. Firstly, the mitigation strategies and policies of industrialised (Annex I Parties) could have implications. For example, the Kyoto Protocol added sulphur hexafluoride, a gas used in switchgears in the energy sector, to the list of gases to be controlled. South Africa, as a non-Annex I country, does not have to limit its use of the gas, but it may become unavailable in the future as Annex I countries phase it out.

Secondly, South Africa may be pressurised to reduce their own emissions in the future and thus implement mitigation policies and strategies within the energy sector. As a coal-dependent and carbon-intensive economy, South Africa could come under pressure to accept future commitments. Already, certain industrialised countries such as the United States are putting pressure on certain developing economies with high total emissions, like India and China, to take on commitments.

Thirdly, South Africa is an attractive African country for Annex I countries to undertake CDM projects. Many of these are likely to be in the energy sector, parts of which are highly inefficient. For example, it has been estimated that, through efficiency improvements, energy savings of between 20% and 50% are achievable in many industries at relatively low cost.

Research shows that there are substantial energy efficiency improvements that can be made at relatively low cost – or even with financial benefit in the longer term. Eskom and energy-intensive sectors should be proactive in looking for no-regrets opportunities to reduce GHG emissions through energy-efficiency improvements. The South African government needs to balance the need for low-cost electricity production with its environmental consequences. This could mean investing in alternative less-polluting sources of energy or improving the technology behind energy production. In the longer term, electricity prices could be adjusted to reflect the true cost of energy production, distribution and transmission.

Mining

The two main possible impacts of international climate change negotiations on the mining sector are:

- Climate change response measure could result in a decrease in the international demand for coal. South Africa currently exports approximately 34% of its mined coal. A reduction in international demand for coal would have significant impacts on the revenue of coal mines and, as this is a labour-intensive industry, could also result in increased unemployment.
- Energy-efficiency improvements in South Africa could result in a decreasing rate of growth in local demand for coal. This, too, could affect the viability of certain coal mines and could also result in job loss.

The mining sector is very energy-intensive. Deep mining and mineral beneficiation require large amounts of energy. This, together with the current low mineral prices, should provide the mining sector with an incentive to improve energy efficiency independently of the outcome of the climate change negotiations. The use of coal-bed methane as an alternative energy source is another possibility.

Transport

The transport sector accounts for approximately 10% of South Africa's GHG emissions. The high level of emissions in the transport sector is a result of the dominance of road transport, the long distances between places of work and residence, and the large distances. This sector is therefore likely to be a target of mitigation policies and projects – either through the CDM, or if South Africa is required to take on its own commitments in future.

Climate change response measures, such as rising vehicle emissions standards and increased fuel costs, in industrialised countries could indirectly cause increased cost of vehicles and vehicle parts. This could happen for two reasons; firstly, as a result of South Africa trying to keep pace with technological advancement and, secondly, as a result of the fact that many vehicle components are imported and assembled in South Africa.

The transport sector could also be affected by climate change through the vulnerability of transport infrastructure to extreme climate events. For example, a potential increase in the frequency and magnitude of flooding could impact on road and rail bridges and networks.

Regardless of the outcome of the climate change negotiations, increases in vehicle efficiency and reduction of emissions from the transport sector should be carried forward, as transport costs are a large part of production and living costs in South Africa. Possible mitigation options include: promoting public transport, improving spatial development and road planning, and developing more efficient engines with lower emissions and less need for vehicle maintenance.

Opportunities for accessing climate change funding

The UNFCCC provides opportunities for South Africa to access funding for climate change activities, in terms of its commitments under the Convention, its adaptation needs, and mitigation initiatives.

Article 11 of the Convention states that the financial mechanism shall provide financial resources on a grant or concessional basis. On the interim basis, the Global Environmental Facility (GEF) has been designated as the Convention's financial mechanism. Article 4 of the Convention provides that the GEF should meet the following costs for developing country parties:

- the full costs of preparing communications;
- the agreed full incremental costs of other developing country commitments;
- the costs of adapting to adverse effects of climate change, particularly to vulnerable country parties.

South Africa has already accessed funding from USAID and GTZ to undertake a Country Study which focuses on four areas: establishing an inventory of GHG emissions, undertaking an assessment of vulnerability and adaptation, researching mitigation options, and developing policy. The Country Study Programme is expected to be completed by the end of 1999 and will shed new light on the vulnerability of South Africa to climate change, adaptation needs and mitigation options.

Sectors particularly vulnerable to climate change should seek further opportunities for funding to assess the measures required to adapt to the adverse effects of climate change.

The emissions reduction commitments of industrialised countries make co-operation and investment with developing countries attractive. The CDM is a mechanism to finance climate-friendly projects with sustainable development benefits for host developing countries in exchange for carbon credits for the investing industrialised party. South Africa has not yet ratified the Kyoto Protocol, but is likely to be an attractive country for investment through the CDM if it does. CDM projects are likely to target the

mining, forestry, transport and, particularly, the energy sectors.

Conclusion

There is considerable uncertainty around the climate change issue in its various dimensions, and it is important to establish its boundaries. A key area of uncertainty is the potential impacts of climate change on specific sub-regions, such as southern Africa. This uncertainty, coupled with the long periods over which it might occur, makes it extremely difficult to make assessments of the economic and social costs of possible climate change. Clearly, there is a need to conduct thorough research on the impacts of climate change on South Africa and its neighbours. Vulnerable areas, sectors and groups should be identified, and proposals made regarding future strategies to tackle the issue. GEF funding to enable research into adaptation measures should be sought.

The impact of climate change response measures on South Africa's economic sectors also needs to be the subject of further research. For example, it is not yet clear how response measures affecting the coal and energy sectors will impact on South Africa's GDP and employment levels. Further research is also required to determine the potential investment benefits of mitigation options in the energy, mining and transport sectors.

It is vitally important, that the South African government is proactive in its involvement in the international negotiations to ensure the best possible outcome for South Africa, bearing in mind the country's current status as a non-Annex I (developing) nation, and the possibility of future commitments.

The Fourth Conference of the Parties to the FCCC: Links between the agenda and the FCCC and Kyoto Protocol

The agenda for the Fourth Conference of the Parties to the FCCC refers frequently to key articles of the FCCC and the Kyoto Protocol. The table below provides an overview of the links between articles and agenda items. Note that almost all of the agenda items are also linked to decisions taken at the previous session of the Conference of the Parties (COP 3). The are denoted as, for example, decision 4/CP.3. The opening and closing administrative items on the agenda have not been included.

Agenda item	*Ref. FCCC (or KP)*
2. Organisational matters:	7
3. Reports of subsidiary bodies: action on conclusions and guidance on future work:	9
(a) Report of the Subsidiary Body for Scientific and Technological Advice;	10
(b) Report of the Subsidiary Body for Implementation;	13
(c) Report of the Ad Hoc Group on Article 13.	
4. Review of the implementation of commitments:	
(a) Review of information communicated under Article 12 *[Communication on implementation]*:	12
(i) National communications from Parties included in Annex I to the Convention;	12.2-3 12.1, 12.7
(ii) Initial national communications from Parties not included in Annex I;	11
(b) Financial mechanism:	21
(i) Report of the Global Environment Facility to the Conference;	
(ii) Review process referred to in decision 9/CP.1	4.1 (c)
(c) Development and transfer of technologies (decision 13/CP.1);	4.2 (a)-(b),
(d) Second review of the adequacy of Article 4.2(a) and (b) *[Annex I commitments]*;	4.2 (d) 4.8,4.9
(e) Implementation of Article 4.8 and 4.9 of the Convention (decision 3/CP.3);	4.2 (a)
(f) Activities implemented jointly: review of progress under the pilot phase (decision 5/CP.1);	4.2 (f)
(g) Review of information and possible decisions under Article 4.2(f) [*Amending Annexes*];	
(h) Other matters relating to implementation:	4.1 (g), 5
(i) Research and systematic observation (Articles 4.1(g) and 5 of the Convention);	
(ii) Scientific and methodological aspects of the proposal by Brazil.	
5. Matters related to the **Kyoto Protocol**:	
(a) Matters related to decision 1/CP.3, paragraph 5 [rules and modalities for calculating:	
(i) Land-use change and forestry;	3.4 (KP)
(ii) Article 6 of the Kyoto Protocol [*joint implementation*];	6 (KP)
(iii) Article 12 of the Kyoto Protocol [*clean development mechanism*];	12 (KP)
(iv) Article 17 of the Kyoto Protocol [*international emissions trading*];	17 (KP)
(v) Impact of single projects on emissions in the commitment period.	
(b) Matters related to decision 1/CP.3, paragraph 6: preparations for the first session of the Conference of the Parties serving as the meeting of the Parties to the Protocol.	various (KP)
6. Voluntary commitments by non-Annex I Parties.	4.2 (g)
7. Administrative and financial matters [*for the Convention*]	

Bloc positions and trends at COP4: The Southern perspective

This document provides an overview of the non-Annex I (developing) country positions and trends in the international climate change negotiating process. While the focus of the document is on the Kyoto mechanisms, other issues which affect developing country unity are also discussed.

Non-annex I groupings[4]

G77 and China

Rather than being a coherent or consistent voting bloc, the G77 and China is a loose coalition of developing countries who work together to develop common positions and present a united front on key issues in the climate change negotiations.

Between 1995 and 1997 in the climate change negotiations, developing countries unified, under the G77 and China banner, in their resistance to the repeated attempts of the Umbrella Group to introduce voluntary commitments for developing countries. The unity of the developing countries on this issue spilled over into other areas, especially their positions on the flexible mechanisms.

To date, the bargaining strength of the developing countries has rested in the unity of the G77 and China negotiating bloc. It consists of approximately 130 members who, however, also have widely differing interests, levels of development, and motivations. For example, China and others have enormous coal resources that are vital to their economic development. African countries tend to focus on their vulnerability and impacts. Many Asian countries are concerned about the possibility of being the next in line for emissions-reduction targets. The oil-producing countries are concerned with the adverse impacts of climate change mitigation measures on their economies. These varied interests began to emerge more strongly during the negotiations at COP4 and signs of future rifts and splits are beginning to show. Some of the issues in which the divergent interests of the developing county Parties are playing out are:

- voluntary commitments,
- compensation for the adverse effects of climate change response measures, and
- the timing for implementation of the CDM.

Within the G77 and China there are several smaller groupings which represent more defined and similar interests. These include the Alliance of Small Island States (AOSIS), the OPEC countries and the African Group.

Alliance of Small Island States (AOSIS)

AOSIS is an ad hoc coalition of low-lying and island countries that are particularly vulnerable to the impacts of climate change, particularly sea-level rise, and that also share common public policy positions on climate change.

AOSIS has played a prominent role in inciting support for the Convention and in the adoption of binding commitments. As a group, they support rapid action to reduce emissions and the strengthening of commitments for Annex I Parties.

The two main issues for the AOSIS group are ensuring that the targets of the Kyoto Protocol result in *real* emissions reductions and that the funding, activities, measures and guidelines for adaptation to climate change are put in place so that they can begin taking the practical steps already required to adapt to climate change and sea-level rise.

Note: The first three countries to ratify the Protocol were Fiji, Antigua-Barbuda and Tuvalu, all small island states.

OPEC

OPEC consists of 11 oil producing countries whose primary concern in the climate change debate is the likely impact on their economies if other countries reduce their use of oil.

The OPEC countries are often considered by other countries to be attempting to halt or

[4] This section, specifically the text on G77 & China and OPEC, draws on Anderson, D, 1998, *The road to Buenos Aires: Political blocs and key issues in the climate change negotiations*. ECON Centre for Economic Analysis, Oslo.

hinder the climate change negotiation process. Supported by the US fossil fuel industry, the OPEC countries have been consistent leaders in questioning the actually existence of climate change as a human phenomenon. Up until COP 2 in 1996, the OPEC countries held a strong position in opposition to a legally binding protocol. Once, at COP 2, the US indicated that it would support legally binding commitments, the position of the OPEC countries changed – they began supporting the broader aims of the G77 and China group. At COP 3, the OPEC countries attempted to insert language into the proposed protocol providing a compensation mechanism for countries adversely affected by the implementation of climate change mitigation policies and measures. This was strongly opposed by most developed and many developing countries, especially AOSIS, whose focus was on strong action by the developed countries to avert potentially devastating physical effects of climate change. OPEC allowed the deletion of the language in the protocol, because the concept is protected by similar language enshrined in the Framework Convention.

At Buenos Aires, the oil-producing and -exporting countries argued that they should be included in the list of most vulnerable countries as their countries would be severely impacted as the world uses less oil. There were also continued attempts by the OPEC countries, led by Saudi Arabia, to insert the issue of compensation for loss of revenue resulting from climate change response measures.

The African Group

African group meetings were not well attended and African Parties focused their attention on the G77 and China meetings. Within the G77 and China group, however, the Parties from Africa showed a much stronger voice in Buenos Aires, than in previous sessions and were united on specific issues around the CDM.

Positions and trends

The following section addresses the positions and trends in the G77 and China group on some of the significant issues for developing countries.

Flexible mechanisms

In the development of the work programme for flexible mechanisms, a number of differences of opinion emerged both within the G77 and China bloc and between the developed and developing countries. Notably, the G77 and China wanted to the work to start where it ended during the previous session in Bonn and did not want the Secretariat to come up with a draft plan of action. The G77 and China were invited to draw up an action plan. This action plan was not accepted by the OECD countries who rejected it on the basis that it had no deadlines, timeline and allocation of work and on the basis of its prioritisation of the work, calling for the parallel development of all three mechanisms. Ultimately, Parties were invited to add to the G77 and China action plan, resulting in a comprehensive list of issues. While the issues of the G77 and China are included in the work programme, issues that they do not agree with are also included.

Supplementarity

The G77 and China, for the most part, agree that supplementarity is an essential guiding concept for the mechanisms. The group take the view that there should be restrictions (caps) on flexible mechanisms to ensure that at least part of the commitments of developed countries are met through domestic action. The African group reiterates this position, arguing that the use of flexible mechanisms should be limited to an agreed amount, since the primary objective of the Protocol is to encourage domestic action.

While some developing countries, such as China and India, believe that developed countries should meet most of their emissions reduction commitments through domestic action, others are more flexible with regard to the limitations on the use of mechanisms to achieve reduction targets.

The EU supports the G77 and China's position on restrictions for flexible mechanisms, while the JUSSCANNZ countries view these mechanisms as a means to meeting their targets and are, therefore, opposed to caps.

This issue will continue to raise significant debate in the negotiating process, particularly due the suspicion of some developing country Parties that the

mechanisms are designed by developed countries to avoid domestic abatement action and to force developing countries to accept commit-ments through the back door.

Prioritisation of the CDM

A divergence of views emerged within the G77 and China group on the time frame for CDM. The African group are keen to prioritise CDM and get it started as soon as possible. They are supported by the Latin American countries who want the expeditious creation of the CDM and propose an interim phase approach to develop guidelines and rules.

Other G77 and China countries want a slower approach to the CDM. India and China insist that, before trading commences, the entitlements for both developed and developing nations must be defined. They argue that, without entitlements, CDM is likely to benefit the richer G77 nations where Annex I countries can achieve fast, cheap emissions credits, with the poorer nations being over-looked as in the AIJ pilot phase. AOSIS also want procedures to be in place before going ahead with the CDM. They argue that this will ensure that the mechanisms deliver real emission reductions. AOSIS want the CDM to be given priority to resolve uncertainties, but want a work plan to resolve the issues.

Despite the divergence of views, the G77 and China held a united public position that a definition for trading must be established before the mechanisms are implemented.

Review of AIJ

The G77 and China supported the continuation of the AIJ pilot phase, but opposed text on crediting for AIJ pilot phase projects. However, some developing countries, for example Costa Rica, want qualifying projects under AIJ to become CDM projects. Other developing countries, such as South Africa, argue that existing projects should not automatically be recognised as CDM projects, but projects with merit could be considered. The AOSIS countries propose that pilot AIJ projects should continue, but should not be used for emission reduction credits under the Kyoto Protocol until the difficulties with verification of emissions reductions have been resolved.

Voluntary commitments

Voluntary commitments entered the climate change negotiations in 1997, when US senators signed the Byrd-Hagel Resolution which stated that the US Senate would not ratify any treaty to reduce emissions until there was *meaningful participation from developing countries.*

The FCCC and the Kyoto Protocol do not require developing countries to commit to emissions limitation. Instead, they are allowed to increase emissions to achieve their development needs. While at COP 3, this issue unified that G77 and China, at COP 4 voluntary commitments for developing countries became potentially the most divisive issue for the G77 and China bloc.

The issue resurfaced at COP 4 when Argentina suggested the inclusion of commitments from developing countries on the conference agenda. While the issue of developing country commitments was struck from the conference agenda after a strong negative reaction from developing country Parties, supported to some extent by the EU, it remained an item of discussion, with the US entering the issue into debate throughout the conference.

While the majority of the developing countries are opposed to taking on voluntary commitments, at least until Annex I countries have shown demonstrable progress (a yet undefined term) toward achieving their commitments, Argentina and Kazakhstan broke ranks from the rest of the G77 by the end of the conference. Argentina agreed to take on voluntary commitments for the 2008 to 2012 commitment period if the targets apply to expected growth in emissions rather than reducing current levels. Kazakhstan expressed its intent to take on commitments as an Annex I Party. Other countries such as Chile, Mexico and South Korea are said to be considering comparable steps.

Adaptation and compensation

In Article 12 of the Kyoto Protocol, provision is made for an adaptation levy on CDM projects to finance the cost of adaptation for those countries most vulnerable to the effects of climate change.

Developing countries, most notably the AOSIS countries, call for the adaptation levy to be applied to all three mechanisms. They

view both funding for adaptation measures and activities and the CDM as important, and do not want the CDM to be prejudiced by the adaptation levy.

In relation to adaptation, a divergence of opinions arose in the G77 and China bloc around the push by the OPEC countries for compensation for loss of revenue due to a reduction in the use of fossil fuels. OPEC, represented by Saudi Arabia, expressed intent to link compensation to the adaptation costs for countries likely to be worst affected by climate change. The rest of the G77 and China were unwilling to accept these efforts.

Adverse effects on developing countries

Most developing country Parties view the operationalisation of Articles 4.8 and 4.9, which refer to the adverse effects of climate change and climate change response measures on developing countries, as a very important tool which can assist those countries particularly vulnerable to the adverse effects of climate change and climate change response measures to be able to develop in a sustainable manner.

The OPEC countries view the Articles as an opportunity to negotiate an insurance regime or fund that would compensate for their economic losses resulting from the reduction in oil imports.

Developing country Parties argued that Annex I Parties should identify, and include in their national communications information on, possible impacts of response measures, arguing that information should be provided by those who have the capacity and resources. The developed countries, notably the US, Japan and Canada, saw it as impractical or impossible to assess impacts outside their borders and argued that developing countries were best placed to identify the effects.

Technology transfer

Three proposals were submitted (by the US, the G77 and China and the EU) on the issue of the development and transfer of technology to developing counties.

The G77 and China proposal called for efforts to enhance indigenous capacities and provide an enabling environment; as well as focusing on identifying the means to link the issues and provide an interface between the providers of the technology and the recipients. The G77 and China proposed a technology transfer mechanism (TTM) to assist developing country Parties to obtain their needed environmentally sound technologies and know-how conducive to addressing climate change on non-commercial and preferential terms and thus contribute to the ultimate objective of the Convention. G77 and China argued that the TTM would facilitate progress and assist all Parties in fulfilling the Convention objectives.

While there was consensus on the capacity building component of the G77 and China proposal, the US and other developed countries strongly objected to the use of the terms *non-commercial* and *preferential*.

While the G77 and China favoured retaining reference to a TTM in the decision, they accepted 'to achieve agreement on a framework of meaningful and effective action' in its place. Bracketed text reference in the Annex asked whether existing multilateral mechanisms were sufficient.

There was also agreement among G77 and China that technology transfer processes should first be enhanced under the Framework Convention and then the Kyoto Protocol.

Conclusions

The meeting ended with a few victories for the G77 and China countries on issues related to financial and technology transfer. The final work programme on the flexibility mechanisms included the list of items they had submitted, with equity and transparency and a basis of rights and entitlements of Annex B parties for emissions trading among them.

G77 + China

Afghanistan
Algeria
Angola
Argentina
Bahamas
Antigua & Barbuda
Bahrain
Bangladesh
Barbados
Belize
Benin
Bhutan
Bolivia
Botswana
Bosnia & Herzegovina
Brazil
Burkina Faso
Brunei Darussalam
Burundi
Cambodia
Cameroon
Cape Verde
Chad
Chile
China
Colombia
Central African Rep.
Comoros
Congo
Costa Rica
Côte d'Ivoire
Cuba
Cyprus
Djibouti
Dominica
DPRKorea
Dominican RepEcuador
D R Congo
Egypt
El Salvador
Equatorial Guinea
Eritrea
Ethiopia
Fiji
Gabon
Gambia
Ghana
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras
India
Indonesia
Iran
Iraq
Jamaica
Jordan
Kenya
Kuwait
Lebanon
Lesotho
Lao PDR
Liberia
Madagascar
Libyan Arab Jamahiriya
Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Mauritania
Mauritius
Micronesia
Mongolia
Morocco
Mozambique
Myanmar
Namibia
Nepal
Nicaragua
Niger
Nigeria
Oman
Pakistan
Palestine
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Qatar
Romania
Rwanda
St Kitts & Nevis
St Lucia
St Vincent & Grenadines
Samoa
Saudi Arabia
Sao Tome & Principe
Senegal
Seychelles
Sierra Leone
Singapore
Somalia
Solomon Islands
South Africa
Sri Lanka
Sudan
Suriname
Swaziland
Syrian Arab Republic
Thailand
Togo
Tonga
Tunisia
Turkmenistan
Trinidad & Tobago
Uganda
Uruguay
United Arab Emirates
U. Rep. Tanzania
Vanuatu
Venezuela
Vietna
Yemen
Yugoslavia
Zambia
Zimbabwe

AOSIS

American Samoa
Antigua & Barbuda
Bahamas
Barbados
Belize
Cape Verde
Comoros
Cook Islands
Cuba
Cyprus
Dominica
F. Ss of Micronesia
Fiji
Grenada
Guam
Guinea-Bissau
Guyana
Jamaica
Kiribati
Maldives
Malta
Marshall Islands
Mauritius
Nauru
Netherlands Antilles
Niue
Palau
Papua New Guinea
Saint Kitts & Nevis
Saint Lucia
Samoa
S. Vincent & Grenadines
Soa Tome & Principe
Seychelles
Singapore
Solomon Islands
Suriname
Tonga
Trinidad & Tobago
Tuvalu
US Virgin Islands
Vanuatu

OPEC

Algeria
Indonesia
Iraq
Islamic Republic of Iran
Kuwait
Libyan Arab Jamahiriya
Nigeria
Qatar
Saudi Arabia
United Arab Emirates
Venezuela

Bloc positions and trends at COP 4: The Annex I perspective

This document looks as some of the issues of importance to the Annex I countries in the climate change negotiations and addresses some of the differences in positions among those countries.

Annex I blocs

With the exception of the European Union (EU), there are no formal blocs within the Annex I countries. Countries with similar positions on certain issues consult with each other, but rarely coordinate positions. The EU is the one exception as it is a recognized legal entity. The EU position is coordinated among the 15 EU countries, with the country holding the EU presidency speaking on behalf of the EU.

- JUSSCANNZ is an Annex I group comprised of a range of countries not in the EU. They meet to share information on issues pertaining to the negotiations. Members are free to voice their own sovereign views on any issue, and they do not participate in the negotiations as a bloc. Members of JUSSCANNZ include Japan, the US, Canada, Australia, New Zealand, Iceland, Korea, Norway, Mexico, Russia, and Switzerland.
- Countries with economies in transition (EITs) include the Central and Eastern European countries and countries who were once part of the Soviet Union. As with JUSSCANNZ, this group does not speak as a bloc in the negotiations.
- The EU and JUSSCANNZ countries periodically meet in a Common Interest Group in order to share information on the negotiations.

COP 3 saw the formation of an informal group of 'like-minded' countries (primarily on emissions trading) called the *Umbrella Group*. Countries in this group include: Australia, Canada, Iceland, Japan, New Zealand, Norway, Russian Federation, Ukraine and the United States of America. The coordination within the Umbrella Group has over time expanded to the other Kyoto mechanisms and some related questions. Because of its informal nature, countries within the Umbrella Group do not necessarily have one *common* position, and act on their own behalf.

Another post-Kyoto development is a greater coordination between the EU and Switzerland and the eastern European countries (Czech Republic, Slovakia, Croatia, Latvia, Slovenia, Poland and Bulgaria). As with the Umbrella Group, the coordination has been primarily on the Kyoto mechanisms.

Positions and trends

The Buenos Aires Action Plan

In the Buenos Aires Action Plan, the Parties resolved to reach decisions by the end of 2000 on a number of key issues, including:

- principles, modalities, rules and guidelines for the Kyoto mechanisms;
- compliance rules and procedures, including consequences for non-compliance;
- development and transfer of technologies; and
- implementation of Article 4, paragraphs 8 and 9 of the Convention.

The mechanisms

One of the primary focuses of the ongoing negotiations for Annex I countries is the Kyoto mechanisms. Annex I countries generally agree on the need to make progress on the Kyoto mechanisms, and hold many similar views on organisational and institutional issues. Although Annex I countries would have preferred to see more concrete progress, they view the 'Buenos Aires Plan of Action' (with its clear date for decisions to be taken) as a step forward.

There are two predominant views among Annex I countries on the mechanisms, the EU and the Umbrella Group. The major difference between the two groups is on the issue of 'supplemental', i.e., whether the mechanisms should be supplemental to domestic actions. The EU tends to try to deal with the issue in each mechanism while the Umbrella Group views it as an issue linked to

all three mechanisms. This is an issue pertaining to all three mechanisms.

- The EU and associated countries have pushed for a concrete ceiling applied to all the mechanisms that would require a certain amount of emissions reductions to occur domestically. This would put a limit on emissions trading, joint implementation, and the CDM. The EU has been unable to go any further on this issue since there are various positions within the EU countries on how and whether to quantitatively define supplemental.
- The countries within the Umbrella Group are opposed to defining supplemental since they feel it will be difficult to assess and that under the CDM fewer projects would be initiated. Some of the countries within the Umbrella Group may be willing to consider a qualitative definition where an assessment could be made based on the review of reports such as through the National Communication process.

The AIJ Pilot Phase

Although many Annex I countries in Buenos Aires felt that a conclusive decision on the pilot phase could be taken, there was a general acknowledgement that non-Annex I countries were clearly not ready for this. Compromise language, as reflected in the COP Decision 6/CP.4, begins a process for reviewing the pilot phase. The process for reviewing the pilot phase will be a topic for discussion at the upcoming session (tenth session of the Subsidiary Bodies) in June. It is likely that Annex I countries will again press for a conclusive decision to be taken no later than COP 6. One of the reasons for this is that one lesson that can already be learned from the pilot phase is that the lack of crediting has lessened interest by the private sector in projects that could be eligible under the AIJ pilot phase.

Compliance

Annex I countries are generally in agreement on the need for a stringent compliance system under the Kyoto Protocol. A joint SBSTA and SBI working group on compliance under the Kyoto Protocol was established in Decision 8/CP.4.

Development and transfer of technology

This has been a particularly difficult issue throughout the entire negotiating process. One of the main reasons for this is the difference of opinion in how technology transfer actually works, and whether governments or the private sector should be responsible for its implementation. At COP 4, one developing country stated that governments undertook the moral obligation to transfer technology to non-Annex I governments on a preferential, non-commercial basis. Annex I countries counter, however, that technology is not owned by governments – the private sector is and should be the main vehicle for technology transfer.

Annex I countries, in general, have realized that progress needs to be made in this area, but have been somewhat unsure of the best way to proceed. Buenos Aires saw one of the first breakthroughs in establishing a consultative process that could be useful and practical for all Parties.

Implementation of Article 4, paras 8 and 9

Annex I countries are unified in their approach on the issue of implementing Article 4, paragraphs 8 and 9. Annex I countries do acknowledge that less developed countries have legitimate concerns related to the adverse impacts of climate change which need to be addressed. However, the issue of implementing Article 4.8 and 4.9, was introduced during the AGBM process by OPEC as a way to compensate countries for any revenue lost due to mitigation measures undertaken to meet Annex I commitments (hence the term *compensation*). It has been seen as a 'poison pill' by many Annex I Parties, one that is intended to either slow down or stop the negotiation process. For the moment, the issue will be addressed through a workshop process that should elaborate more on the different perspectives and questions related to the issue.

Land use change and forestry

Land Use Change and Forestry issues have been somewhat contentious. In the lead up to Kyoto, the EU held a conservative view on what should and should not be included in the Protocol. Since then, many Parties within Annex I have preferred to wait for the

outcome of an IPCC special report on these issues. The issue is still under discussion in the CDM. The EU, because it is not explicitly mention in Article 12, feel that sinks should not be included. The predominant view among Umbrella Group countries is that an explicit mention is not needed particularly since Article 3 states that certain types of activities can be included.

In the Buenos Aires Action Plan, Parties agreed to move forward with a process to define, measure and verify various categories of carbon sinks and have tasked the IPCC with conducting a comprehensive study on land-use change and forestry activities, due in 2000.

Adequacy of commitments

The adequacy of commitments under the Convention has been a long-standing issue of contention. Annex I countries, to varying degrees, argue that in order to fulfill the ultimate objective of the Convention, more will need to be done by all Parties. The United States has been one of the leaders in the call for greater developing country participation. The US Senate has said that it will not ratify the Protocol without 'meaningful participation by key developing countries'. It is unclear what will be needed to meet the Senate's vague criteria.

COP 4 produced a deadlock on the review of the adequacy of commitments pertaining to Annex I Parties (Article 4.2, paragraphs a and b). Annex I countries generally feel that Parties have already concluded that the commitments are inadequate and have addressed that inadequacy by undertaking binding commitments under the Kyoto Protocol. They would also argue that the commitments will continue to be inadequate until developing countries take on additional commitments. Most Annex I countries have stated that they do not foresee non-Annex I countries taking on the same level of commitment as Annex I countries. The US, for instance, has stated that what they envisage is a growth target (so that emissions would grow, but at a lower rate than it would have without the commitment) for some key developing countries.

Decisions adopted at COP 4

After two weeks of debate by 170 governments in Buenos Aires, the main outcome of the COP 4 was the adoption of a two year *Plan of Action* which aims to have the Kyoto Protocol fully operational by the time it enters into force after the year 2000.

Buenos Aires Plan of Action

The Buenos Aires Plan of Action sets deadlines for the finalisation of the outstanding details of the Kyoto Protocol. Apart from detailing a two-year work programme to establish the principles, modalities, rules and guidelines for the Kyoto mechanisms (7/CP.4), the Plan of Action also addresses the adverse effects of climate change and implementation strategies (5/CP.4), the transfer of environmentally friendly technologies to developing countries (4/CP.4), review of the and additional guidance to the operating entity of the financial mechanism (2/CP.4 and 3/CP.4), AIJ under the pilot phase (6/CP.4) and preparation for the first COP serving as a meeting of the Parties to the Kyoto Protocol (8/CP.4).

Financial mechanism

Two decisions were taken on the financial mechanism, namely additional guidance to be provided to GEF (2/CP.4) and the status of the GEF as an operating entity of the financial mechanism (3/CP.4).

The decisions on the additional guidance to the GEF include (2/CP.4):

- Provision of funding to developing countries for adaptation activities; including the implementation of adaptation response measures, and the identification of their prioritised technology needs, especially key technologies needed to minimise the adverse effects of climate change.
- Provision of funding to developing countries to build capacity for participation in systematic observational networks to reduce scientific uncertainties related to climate change; for the assessment and fulfilment of technology needs to meet their commitments under the Convention; to design, evaluate and manage country-driven activities and projects; to host projects; and to facilitate national and regional access to the information provided by international centres and networks.
- Provision of funding to developing countries to meet the agreed full cost for the preparation of the initial and subsequent national communications.
- Improvement of the operations of GEF, including streamlining its project cycle; expediting its procedures for the approval and implementation of GEF-funded projects, including disbursements for such projects; and making the process of determining incremental costs more transparent and pragmatic.

There was substantial debate at COP 4 on the issue of funding of subsequent national communications – certain developed country Parties wanted the availability of GEF funding for subsequent national communications to be contingent on the successful review of the initial communications. Some developing countries indicated that their initial communications were poor due to lack of capacity. The issue was resolved by a provision that the GEF would fund second national communications that will take into account experiences, including gaps and problems identified in previous national communications, and guidelines established by the COP.

While no decision was reached on the final status of the GEF, decision 3/CP.4 establishes the restruc-tured GEF as *an operational entity* of the financial mechanism and establishes a process of review of the financial mechanism every four years.

Technology transfer

Decision 4/CP.4 refers to the strengthening of technology transfer to developing countries. The final decision requests the Chairman of SBSTA to establish a consultative process to consider a preliminary list of issues and questions contained in the annex to the decision to make recommendations on how they should be addressed in order to achieve agreement on a framework for meaningful and effective actions to enhance implementation of Article 4.5 of the

Convention. The process should consider issues identified in the secretariat's progress report on transfer of technology and in submissions from Parties. The consultation process could include, resources permitting, regional meetings and workshops and a SBSTA workshop. The Chairman of SBSTA should report on the outcome of the consultative process to SBSTA at its eleventh session, with a view to recommending a decision for the COP at its fifth session.

The decision also includes requests to Annex I, and especially Annex II, countries to take a range of steps to transfer appropriate climate change technology to developing countries. These include:

- Creating an enabling environment for the transfer of environmentally sound technologies by supporting capacity building and strengthening appropriate institutions in developing countries.
- Assisting developing countries to build capacity and institutional frameworks to improve energy efficiency and use of renewable energies through multilateral and bilateral co-operative efforts.
- Assisting developing countries to build capacity for sustainable management, conservation and enhancement of sinks and reservoirs of greenhouse gases; to adapt to the adverse effects of climate change; and to undertake technological and socio-economic research and systematic observation relevant to climate change and its adverse effects.
- Providing a list of environmentally sound technologies and know-how related to adaptation to and mitigation of climate change that are publicly owned for reference by developing countries.

Articles 4.8 and 4.9 of the Convention

Articles 4.8 and 4.9 of the Convention are concerned with how to address the adverse effects of climate change and the impact of the implementation of response measures, specifically in relation to developing countries. Decision 5/CP.4 addresses the process required to identify the actions needed to operationalise and implement these Articles.

The basic elements for further analysis decided upon include identifying:

- adverse effects of climate change and of the impacts of the implementation of response measures under the Convention;
- specific needs and concerns of developing country Parties arising from such adverse effects and impacts;
- actions, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing countries.

Initial actions to address the implementation of the Articles are to be identified by COP 5 and a decision is to be taken on further actions by COP 6, October 2000.

AIJ under the pilot phase

The Buenos Aires action plan decides to continue the AIJ pilot phase to allow developing country Parties to enhance their capacity building and for all Parties to gain further experience with AIJ (6/CP.4).

While a date was not set for the review of the pilot phase, a decision was taken to make preparations for the review process. The SBI and the SBSTA are requested to address the process at their tenth sessions and to take a conclusive decision on the pilot phase, and the progression beyond that, by the end of the year 2000.

Work programme on mechanisms

A two-year work programme on the Kyoto mechanisms – Joint Implementation (Article 6), the Clean Development Mechanism (Article 12) and Emissions Trading (Article 17) – is established to develop guidelines, modalities, rules and procedures to operationalise the mechanisms (7/Cp.4). The work programme is to be undertaken with priority given to the Clean Development Mechanism and with a view to taking decisions on all three mechanisms at COP 6 and, where appropriate, recommendations to the COP/moP I on the following:

- Guidelines for Joint Implementation.
- Modalities and procedures for a clean development mechanism, with the objective of ensuring transparency, efficiency and accountability through independent auditing and verification of project activities, and including the implications of early crediting for CDM

projects (Article 12.10 of the Kyoto Protocol).

- Principles, modalities, rules and guidelines, in particular verification, reporting and accountability of emissions trading, pursuant to Article 17 of the Kyoto Protocol.

A list of elements for further discussion are attached as an annex to the decision. Parties are invited to make submissions on the principles, modalities, rules and guidelines for the mechanisms by the end of February 1999 and additional proposals by the end of March 1999.

The process by which the list of elements, which forms the work programme on mechanisms, was developed resulted in a compromise document which is all inclusive. The G77 and China were invited to submit an action plan, to which other Parties were then invited to add issues – the result was a long and unwieldy list of elements, which fails to eliminate any issues from discussion. Further debate is likely to be required to condense the list before work on the substantive issues of the mechanisms can begin.

Preparations for COP/moP I

The preparatory work for the first session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/moP I) is allocated to the SBI and the SBSTA (8/CP.4). The preparatory work includes establishing national systems and methodologies for estimating emissions and global warming potentials for different gases; guidelines for the preparation and review of supplemental information required to fulfil commitments under the Protocol, including information to demonstrate compliance with commitments; and guidelines, modalities and procedures related to the CDM, compliance, assigned amounts, and joint implementation. The subsidiary bodies are invited to report on these preparations at COP 5.

Land-use, land-use change and forestry

The discussion on land-use, land-use change and forestry at COP 4 focused on Articles 3.3 and 3.4 of the Kyoto Protocol, which refer to the accounting for emissions from land-use change and forestry and the setting up of the modalities, guidelines and rules for the accounting.

A decision (9/CP.4) was taken on how to interpret Article 3.3 of the Protocol and the COP set itself a target of COP/moP I for the development of further draft decisions on the definitions related to activities under Article 3.3 of the Protocol; the modalities, rules and guidelines related to Article 3.4 of the Protocol and the guidelines for necessary supplemental information.

Multilateral consultative process

Article 13 of the Convention makes provision for a Multilateral Consultative Process to resolve questions about the implementation of the Convention. The Ad Hoc Group on Article 13 was set up to define the principles of the Multilateral Consultative Process. The COP approved the text of the multilateral consultative process, set out in Annex II to the report of the Ad Hoc Group on Article 13 on its sixth session, with the exception of the issues in square brackets in paragraph 8 and 9 of the annex (10/CP.4). Paragraphs 8 and 9 refer to the Multilateral Consultative Committee and the criteria for designating members to the Committee. The proposal suggests that members of the Committee should be designated by the COP for three years and that designation should be based on equitable distribution and rotations. Some developed countries opposed this basis for designation, proposing a 50:50 composition of developed and developing countries. No consensus could be reached on this issue and, therefore, it was bracketed and not adopted.

The COP decided to review these issues at COP 5, with a view to adopting a multilateral consultative process and to establish the Multilateral Consultative Committee referred to in the process once these issues have been resolved.

National communications from Parties included in Annex I to the Convention

Decision 11/CP.4 on the *National communications from Parties included in Annex I to the Convention* primarily addresses the inadequacy of reporting by the Annex I Parties to-date and sets deadlines

and requests guidelines to improve reporting procedures.

The 13 February 1999, or as soon as possible thereafter, was set as the target deadline for Annex I Parties who have not submitted their first national communication.

Furthermore, Annex I Parties are requested to submit the following to the secretariat:

- A third national communication by 30 November 2001 and subsequent national communications on a regular basis, at intervals to be decided on at a future session. Parties who are yet to submit their second national communication should submit them by the 30 November 2001.
- National inventory data on emissions of greenhouse gases by sources and removal by sinks on an annual basis by 15 April for the period up to the last but one year prior to the year of submission.
- Summary tables of national inventory data.

National communications should be subject to an in-depth review and the subsidiary bodies are requested to consider the scope, modalities and options for the review process.

Initial national communications from Parties not included in Annex I to the Convention

Each non-Annex I Party is required to make their initial national communications within three years of entry into force of the Convention for that Party and will receive technical and financial support to achieve these objectives. Least developed Parties may make their initial communications at their discretion.

No substantive decisions on non-Annex I national communications were agreed upon at COP 4 and the issue will be further addressed at COP 5.

Relationships between efforts to protect the stratospheric ozone layer and efforts to safeguard the global climate system

The discussion on the relationship between the efforts under the Montreal Protocol and the efforts under the Framework Convention focus on hydrofluorocarbons and perfluorocarbons. Hydro-flourocarbons and perfluorocarbons are among the substances that are being used to replace ozone-depleting substances. These substances have high global warming potentials, however, and are listed in Annex A of the Kyoto Protocol as greenhouse gases. Decision 13/CP.4 focuses on the need to consider available and potential ways and means of limiting emissions of hydrofluorocarbons and perfluorocarbons in the context of the Kyoto Protocol. Parties, the relevant bodies of the Montreal Protocol, the IPCC, intergovernmental organisations and non-governmental organisations are invited to provide information to the secretariat by 15 July 1999 on potential ways and means of limiting emissions of these substances.

Research and systematic observation

To improve existing observation systems which are limited in their application to climate change, the COP urges Parties to (14/CP.4):

- undertake programmes of systematic observation;
- undertake free and unrestricted exchange of data to meet the needs of the Convention;
- support capacity building in developing countries to collect, exchange and use data to meet local, regional and international needs; and
- support national terrestrial, oceanic and meteorological and atmospheric observing systems.

Review of information and possible decisions under Article 4.2(f) of the Convention

Article 4.2(f) of the Convention calls on the COP to review the lists in Annex I and II Parties to the Convention by December 1998. At both COP 3 and COP 4, the discussion in relation to this Article was focused on Turkey's request that it be removed from the list of Annex I and II. Turkey has argued that economically it is not in a position to take on commitments as an Annex I and Annex II Party and that its

ratification of the Convention is being delayed by the fact that it has been classified as such.

No decision was taken on the issue of deleting Turkey's name from the lists included in Annexes I and II at COP4. The matter will be reviewed further at COP5 and a request was made to place the matter on the COP 5 agenda (decision 15/CP.4).

Turkey's request to be deleted from the lists included in Annexes I and II may be further complicated by the fact that, at COP 4, Kazakhstan indicated its intent to take on commitments as an Annex I Party. The question arises: why, if Kazakhstan is included as an Annex I Party, should Turkey not be?

Impact of single projects on emissions in the commitment period

The discussion related to this issue has centred around Iceland's request for an exemption from its Kyoto Protocol commitments so it can build an aluminium smelter which would be powered by geothermal energy which does not produce greenhouse gases.

The decision on Iceland's request was postponed, with a request being made to SBSTA to provide additional information on the matter and a resolution being made to take a decision on the matter, as appropriate, at COP 5 (16/CP.4).

One of the principal concerns in relation to this matter expressed by developing countries, notably the AOSIS bloc, has been whether granting an exemption before the Kyoto Protocol even comes into force will set a precedent which would allow other polluting industries or countries to gain an exemption.

Administrative and financial matters

Decision 17/CP.4 addresses the administrative and financial matters pertaining to the operation of the Convention. The financial statements and audited reports of the 1996-1997 period and the financial performance for the 1998-1999 period are acknowledged. The indicative scale of contributions to the core budget which follows the principle that all Parties should contribute to the Convention budget is adopted. The new indicative scale for the biennium 1998-1999 which is adjusted to ensure that no Party contributes less than 0.001% of the total; that no one contribution exceeds 25% of the total ; and that no contribution from a least developed country Party exceeds 0.01% is adopted.

Attendance of intergovernmental and non-governmental organisations at contact groups

At previous COPs, intergovernmental and non-governmental organisations were able to attend plenary meetings of the SBSTA and SBI, but were not able to attend the contact group meetings. One of the first items on the agenda at COP 4 was the attendance of intergovernmental and non-governmental organisations at the contact group meetings. A decision (18/CP.4) was taken that ... *the presiding officers of Convention bodies may invite representatives of intergovernmental and non-governmental organizations to attend as observers any open-ended contact group established under the Convention process.* However, if *at least one-third of the Parties present at the session of the Convention body setting up that contact group object*, the contact group will be closed to observers. Furthermore, the presiding officers of contact groups may determine to close the contact group to intergovernmental and non-governmental organisations at any time during their proceedings.

At COP 4, intergovernmental and non-governmental organisations were able to attend the contact groups as observers during the first week of the proceedings. During the second week, as the negotiations became more sensitive, the contact groups were closed to observers to facilitate open discussion within the groups.

Calendar of meetings of the Convention bodies

The calendar of meetings for the Convention bodies for the years 2000 – 2001 were decided as follows (*decision 19/CP/4*):

- First sessional period in 2000: 5 to 16 June
- Second sessional period in 2000: 16 to 27 October (provisional dates)
- First sessional period in 2001: 21 May to 1 June
- Second sessional period in 2001: 29 October to 9 November

The annual COP will take place in the second sessional period of each of the years.

Decisions adopted by the COP

1/CP.4	Buenos Aires Plan of Action
2/CP.4	Additional guidance to the operating entity of the financial mechanism
3/CP.4	Review of the financial mechanism
4/CP.4	Development and transfer of technologies
5/CP.4	Implementation of Article 4, paragraphs 8 and 9, of the Convention (decision 3/CP.3 and Articles 2.3 and 3.14 of the Kyoto Protocol)
6/CP.4	Activities implemented jointly under the pilot phase
7/CP.4	Work programme on mechanisms of the Kyoto Protocol
8/CP.4	Preparations for the first session of the COP serving as the meeting of the Parties to the Kyoto Protocol: matters related to decision 1/CP.3, paragraph 6
9/CP.4	Land-use, land-use change and forestry
10/CP.4	Multilateral consultative process
11/CP.4	National communications from Parties included in Annex I to the Convention
12/CP.4	Initial national communications from Parties not included in Annex I to the Convention
13/CP.4	Relationship between efforts to protect the stratospheric ozone layer and efforts to safeguard the global climate system: issues related to hydrofluorocarbons and perfluorocarbons
14/CP.4	Research and systematic observation
15/CP.4	Review of information and possible decisions under Article 4.2 (f) of the Convention
16/CP.4	Impact of single projects on emissions in the commitment period
17/CP.4	Administrative and financial matters
18/CP.4	Attendance of intergovernmental and non-governmental organisations at contact groups
19/CP.4	Calendar of meeting of Convention bodies 2000 – 2001

Tenth Session of the Subsidiary Bodies

The tenth sessions of the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA) will meet in Bonn from May 31 to June 11. The provisional agenda has not yet been made available. Items likely to be on the agenda would include core issues in the Buenos Aires Plan of Action: the pilot phase AIJ, the Kyoto Mechanisms, development and transfer of technology, and Articles 4.8 and 4.9. Other items that are likely to be on the agenda include land-use change and forestry, the financial mechanism, national communications, and preparatory work for the first COP/moP - an overlapping and broad topic.

Decisions taken by the COP at its fourth session called for submissions by Parties on many issues. Most of these submissions are not yet available. It is, therefore, difficult to say with any certainty what may happen in Bonn. Once submissions are available, it will become a bit easier to identify potential areas of agreement and disagreement.

Review process of the AIJ pilot phase

The Conference of the Parties is to take a conclusive decision on the pilot phase, and the progression beyond that, no later than the end of the present decade. In order to take a decision, it is likely that a review of the pilot phase will be undertaken. In Decision 6/CP.4, Parties were asked to submit views on the "process and information on experience gained and lessons learned" with the AIJ pilot phase in order to facilitate the review process. Submissions will be released as MISC documents and are likely to be used as a basis for discussions in June.

In previous sessions, there was a clear split between Annex I and non-Annex I Parties on continuing the pilot phase. Non-Annex I countries, in general, have argued for the continuation of the pilot phase in order to gain more experience. Annex I countries feel that enough experience has been gained and that there may not be many more AIJ projects forthcoming. There is a general acknowledgment that a decision on the pilot phase is not likely to occur until COP 6.

Expected outcome: Parties will begin designing the process by which the AIJ pilot phase will be reviewed. A final decision, however, on the review process is not likely to occur until COP 5.

The Kyoto mechanisms

To date, discussion during various sessions of the subsidiary bodies on the mechanisms has focused on agreeing on a list of elements that should be discussed. Progress was slow and complicated by the inclusion of political issues not directly related to the mechanisms. There is a general acknowledgement by many Parties that discussions on the mechanisms based on this list (contained in Decision 7/CP.4) would be difficult and complicated at best.

Decision 7/CP.4 specified that two technical workshops are to take place with inputs from Parties and drawing on relevant contributions from intergovernmental and non-governmental organizations. The UNFCCC Secretariat, in response to this decision, arranged a comprehensive workshop (thereby collapsing the two workshops in one) in early April in Bonn, Germany, focusing on technical aspects of all three mechanisms. The workshop provided a forum for non-Annex I and Annex I Parties to discuss the mechanisms in a less politicized arena.

Although some Parties may wish to continue using the list of elements, many Parties seem to be willing to find a more productive method for working on the mechanisms. Submissions for the technical workshop included potential legal text for the mechanisms and may be a way that progress on the mechanisms can be made.

Expected outcome: The negotiations are likely to move away from the list of elements and begin to focus on the submissions by Parties. There is also interest by Parties to find a way to move forward on technical issues. This will be particularly important for the CDM. If sufficient agreement can be reached, a decision could be reached on how to move forward on technical issues.

Development & transfer of technology

In Decision 4/CP.4, Parties and interested international and non-governmental organisations were asked to identify projects and programs on cooperative approaches to technology transfer that could be models for

improved diffusion and implementation of clean technologies. Parties were also requested to respond to questions and issues in an annex to the Decision. A consultative process was established to consider the issues in the annex, submissions by Parties and the secretariat's progress report on technology transfer. Under the consultative process, regional workshops and meetings are to be held if resources permit it.

Expected Outcome: Discussions on this issue are likely to focus on the submissions, the consultative process and how the regional workshops and/or meetings will be structured. It is unlikely that more than one workshop will be held before the end of the year.

Articles 4.8 and 4.9

Decision 5/CP.4 contains a program of work that should provide the basis for discussions in June. Parties will have submitted views on issues to be discussed at an experts workshop (to be held in September) by the end of April.

Expected Outcome: Discussions are likely to focus on the submissions by Parties with the outcome being the terms of reference for the workshop.

Technical workshop on mechanisms

Primary issues discussed around CDM were:

1. Design of the CDM: Its operation and governance

- Range of different options for financing of CDM project – bilateral, multilateral, portfolio of projects offered by one or several governments -> more projects
- Role and function of Executive Board
  - As centralised forum which provides consistent and transparent decision making – this raises transaction costs
  - Role limited to design of criteria for reviews – this reduces transaction costs

2. Baselines/baseline methodologies

- Different approaches put forward included:
  - *Project specific approach* – precise baseline based on the technical specification and/or operational records of existing facilities
  - *Technology benchmark matrix approach* – forms a baseline by country and by technology category, with a benchmark suitable for groups of similar CDM projects (results in lower transaction costs in implementation)
  - *Top-down baseline* – the total national emissions in a given year would be divided and assigned as baseline emissions by sector, region, technology etc in a top-down manner
- Differences centred around support for the different methodological approaches:
  - Some supported the use of project-by-project approach in early stages of CDM, but to lower transaction costs technology benchmark approach to be used eventually
  - Some supported the use of the project-by-project approach only
  - US supported the use of the technology benchmark approach for some sectors, for example the electricity sector

3. Adaptation

- Who benefits from adaptation funding? Those involved in CDM or all vulnerable countries?
- Suggestion on developing a vulnerability index that would allow objective assessment to facilitate decision-making about adaptation and would ensure distribution of proceeds to address the needs of vulnerable groups – to achieve this, need to identify sources of vulnerability for various geographic regions and contexts
- Questions that need to be answered:
  - What does adaptation mean?
  - How to determine the share of CDM proceeds?
  - Burdensharing of proceeds between Parties?
  - Apportionment between administrative expenses and adaptation funds?
  - What adaptation projects will be eligible for funding?
  - Definition of vulnerability?

4. Assisting in arranging funding

- World Bank highlighted the importance of investment funds to spread the risk (such as the Prototype Carbon Fund) and encourage investment in Africa – BUT what incentive exists for fund manager to include them in his portfolio unless he expects credits at a cheaper price
- Statements focused on relationship between ODA and CDM and financial additionality – suggested that COP agree on level of ODA from which the financial flows related to climate are additional; rethink use of GEF money before CDM becomes operational in year 2000

5. Validation, verification and certification: Technical and process issues

- Discussion focused on potential to apply ISO type standards

6. Early action on CDM

- need transitional rules for the early start of CDM – identified need for further work on this interim phase

Issues raised by Parties

Developing countries

- supplementarity (China, India)
- need for host country to decide on whether projects promote sustainable development (China, India, Venezuela)
- need to assist the developing countries in achieving compliance (China)
- additionality of funding (China, India)
- project-by-project baselines (China, India)
- fungibility unacceptable (should not be tradeable) (China, India)
- fair distribution of projects (China, India)
- Executive board not to exceed 25 members and take into consideration subregional balance (Uganda)
- CDM operate in mix mode – multilaterally, bilaterally and with a general fund – with the same rules, procedures and principles (Uganda)

Developed countries

- EU
  - preconditions for participation in the CDM should be that both must ratify the Protocol, be bound by a compliance regime adopted by the COP/MOP, have not been excluded from participation in the CDM, comply with commitments under Article 12
- Umbrella Group
  - work needed on compliance, linkages between mechanisms and advantage of fungibility between the mechanisms
- US
  - two baseline choices: project by project and technology benchmark

Climate change capacity building programmes

There are several programmes, both within and outside the UNFCCC ambit that are meant to support developing nations in their effort to carry out climate change activities. Such programs are specifically aimed at capacitating policy makers, climate change negotiating teams, business executives and NGO leaders about the Climate change Convention and Protocols. In addition, some tertiary institutions also run training programs.

Prog-rammes	*Objectives and modus operandi*	*Targets*	*Contact details*
A. UNDP CDM/AIJ Capacity Building Programme	To assist interested host parties in exploring climate change project-based mechanisms and how such mechanisms can support sustainable development objectives Supports the Kyoto and Buenos Aires follow-up	Provide policy makers and enterprises with guidance and specific examples on how prepare relevant projects. Integrates local counterparts, UNDP Country Offices and Energy and Atmosphere Programme, GEF and Public-Private Partnership units	Geir Sjoberg (Prog. coordinator), Energy & Atmosphere Programme, Sustainable Energy and Environment Division, UNDP-304.45th Street-Office FF 842, New York, NY 10017-U.S.A Tel. (212) 906-06512 Fax. (212) 906-5148
B. UNFCCC Climate Change Training Programme (Cc:Train)	To assist developing nations to prepare national communications, through policy and technical training workshops. Support nationally driven processes which focus on producing certain policy-supported outcomes Subject areas include: CC, UNFCCC & the Kyoto Protocol: challenges and opportunities, National GHG Inventory, Mitigation Analysis, Vulnerability & Adaptation Assessment Certificate Programme, National Implementation Strategy & National Communications CC: TRAIN Operates through two major Programmes, i.e Pacific Islands Climate change Assistance Programme (PICCAP- a GEF capacity building programme involving 12 Pacific Islands countries) and Vulnerability and Adaptation Assessment Certificate Programme- a University based 6 month certificate course on CC offered by the Universities of Waikato, New Zealand and South Pacific	National experts, policy makers and sectoral representatives who could facilitate policy and decision-making on climate change issues Staff could attend short and longer courses on specific areas covered by the programme, eg 6- month course During a 3-year period the country team is trained, supported financially and technically, and made responsible for: overseeing analytical studies on climate change issues, drafting national implementation strategies, implementing national workshops and conferences, organising consultative meetings and public education, awareness and participation activities.	Climate change training programme (CC:TRAIN),United Nations Institute for Training and Research, Palais des Nations, 1211 GENEVA 10, Switzerland Tel: (41-22) 788-1417 (41-22) 798-5850 ext 257, 258, 259 Fax: (41-22) 733-1383 Email: cctrain@initar.org

Prog-rammes	Objectives and modus operandi	Targets	Contact details
C. UNEP, UNDP & GEF National Communi-cations Programmes	To enhance the capacity of non-annex 1 Parties to prepare their initial national communications To improve the quality, comprehensiveness and timeliness of initial national communications from non-Annex 1 Parties to the UNFCCC To ensure timely and cost effective implementation of GEF climate change enabling activity projects	The project has three components: The help desk which provides countries with better access to information for preparing their national communications Technical assistance on the areas of greenhouse inventories, abatement studies, vulnerability and adaptation assessments Regional thematic training workshops	Ms BO Lim, National Communications Support Unit, UNDP-GEF, 304 East 45th Street, 10/F, New York, NY 10017, USA Tel: 1-212-906-5730 Fax: 1-212-906-6998 Email: Bo.Lim@undp.org *or* Mr Ravi Sharma, Climate Change Enabling Activities, UNEP, Nairobi, Kenya Tel: 254-2-62-4215 Fax: 254-2-62-3410 Email: ravi.sharma@unep.org
D. Harvard Institute for International Develop-ment (HIID)	The Executive Program is designed to: Provide participants with an understanding of the complex issues that lie at the interface of climate change and development. Offers lectures on: science of climate change, carbon sequestration, economics of climate change, abatement and adaptation, CDM, monitoring and enforcement, emissions trading and other instruments, international law and conventions etc.	Climate change diplomats Policy makers NGO leaders interested in the science and economics of climate change etc	Executive Program on Climate Change Harvard Institute for International Development, 14 Story Street, Cambridge, MA 02138, USA Tel: 617-495-5999 Fax: 617-496-3956; 617-496-8040 E-mail: climate@hiid.harvard.edu

Climate change internet resources

UNITED NATIONS AND WORLD BANK

UNFCCC Secretariat
www.unfccc.de

The Secretariat site carries full texts of the relevant UN documentation, as well as Real Audio and video files from the global negotiations, particularly COP 4 in Buenos Aires. The site also includes updates on the state of implementation of the UNFCCC in most country Parties. In addition, the site contains administrative information, including submission deadlines and workshop and meeting arrangements. Links to other sites, including other relevant UN organisations can also be found at the UNFCCC Secretariat site. Resource materials to be found at the site include:

- Official FCCC documents; including documents of the COP, subsidiary bodies (SBI, SBSTA, AGBM, AG13) and summaries and in-depth reviews of the national communications of Parties
- Methodological information
- Technological information

Country information

Inter-governmental Panel on Climate Change (IPCC)
www.ipcc.ch

The IPCC consists of about 2,000 scientists from around the world commissioned to investigate the causes and possible solutions to the climate change problem. The IPCC Working Group I is concerned with developments in the scientific understanding of past and present climate, of climate variability, of climate predictability and of climate change including feedbacks from climate impacts; progress in the modelling and projection of global and regional climate and sea level change; observations of climate, including past climates, and assessment of trends and anomalies; and gaps and uncertainties in current knowledge. Working Group II assesses the scientific, technical, environmental, economic, and social aspects of the vulnerability of ecological systems, socio-economic sectors, and human health to climate change; assesses the negative and positive impacts of climate change on these systems and sectors; and emphasises regional sectoral and cross-sectoral issues. Working Group III is concerned with the scientific, technical, environmental, and economic and social aspects of mitigation of climate change. Technical reports of the IPCC working groups are available at the site.

Global Environmental Facility (GEF)
www.gefweb.org

The GEF is the interim financial mechanism for the UNFCCC which provides grants and concessional funds to developing countries for projects and activities that aim to protect the global environment.

Resources to be found at the site include:

- Evaluation of the efficiency and effectiveness of the GEF as the financial mechanism
- List of GEF projects and programmes
- Guide to GEF guidelines and operational strategy
- Information on council meeting documents, intersessional documents, and implementing agencies

UNEP Collaborating Centre
www.risoe.dk *or* www.risoe.dk/sys-ucc/

The UNEP Collaborating Centre is one of the special units based at the Risø National Laboratory in Denmark. It's site houses one of the most complete sources of climate change information on the internet. The site includes:

- Methodological guidelines for GHG limitations
- Information on climate change policy instruments

UNEP Information Unit for Conventions (IUC) www.unep.ch/iuc

UNEP's IUC works with treaty secretariats with the aim of promoting public understanding of and support for environmental conventions. With this target, the IUC site provides simple information on climate change and the history and reasoning behind the climate change Convention.

Includes basic information on the Convention, including a Beginners Guide to the Framework Convention. The site provides a Climate Change Information Kit and a set of more than 90 fact sheets. Also available is the quarterly newsletter the *UN Climate Change Bulletin*.

World Bank: Global Climate Change www-esd.worldbank.org/cc/
The site covers the World Bank Energy-Environment Strategy; the Carbon Backcasting Study; the World Bank-GEF Climate Change Portfolio; the Global Overlays for Climate Change; AIJ Program; National Strategy Studies Program; and the Global Carbon Initiative. The web-site hosts discussion groups and provides a calendar of events. Information on the World Bank's Prototype Carbon Fund can also be accessed from this site.

World Meteorological Organisation (WMO) www.wmo.ch/
The site includes details on major programmes, such as the World Climate Program (WCP). One component of the WCP is the World Climate Data and Monitoring Program, where the WMO posts its *Statement on the Status of the Global Climate*. The site also provides access to the Global Climate Observing System (GOOS).

INTERNATIONAL RESEARCH ORGANISATIONS

International Energy Agency www.iea.org or www.iea.org/climat.html
This site covers climate and energy-related documents and information. The main features include the Climate Technology Initiative, the IPCC/OECD/IEA programme on national GHG inventories and the IEA publications and briefs on climate change. The IEA has jointly organised workshops on the CDM for non-Annex I groupings (Latin America, Africa, Asia).

Organisation for Economic Development www.oecd.org
This site provides access to online documents on climate change policies and measures; and information on the IPCC/OECD/IEA programme on national GHG inventories and the Forum on climate change established by the OECD.

NGO AND PUBLIC INTEREST ORGANISATIONS

Enda Energy www.enda.sn/energie/inexpea.html
A branch of Enda Third World, an international organisation with diplomatic status based in Dakar, Senegal. Enda Energy provides an NGO development perspective on climate change, focusing specifically on Africa. Enda has jointly organised and hosted regional workshops on the CDM. Primary focus issues include:

- Climate change and sustainable development
- Equity and climate change
- Capacity building
- Climate change mitigation analysis

Centre for Science and Environment (CSE) www.oneworld.org/cse/index.html
Based in Delhi, the CSE is a public-interest organisation which provides a strong southern perspective on the climate change negotiations, as well as a forum for climate change debate. The CSE dossier provides an interesting perspective on the politics and issues to be discussed in the negotiations. Issues of focus include:

- equity and entitlements, and
- political analysis of the negotiations.

Tata Energy Research Institute (TERI) www.teriiin.org
Based in New Delhi, TERI's Centre for Global Environmental Research undertakes policy research that aims to integrate developing country concerns in the search for equitable and effective solutions to global environmental challenges. The Centre focuses its activities on Asia, and specifically India, but also provides capacity building in other developing countries. Issued covered include:

- GHG emissions inventories
- Abatement strategies and policies
- Assessment of impacts
- Adaptation strategies and policies
- Tracking and analysing issues arising from the international climate change negotiations

Climate Change in Asia
www.ccasia.teri.res.in/
This site is developed and managed by TERI. The site provides country information on GHG inventories, mitigation options, vulnerability and adaptation, and activities and projects. In addition, the site presents country specific climate change publications, as well as regional studies.

ECO - The Climate Action Network
www.igc.org/climate/eco.html
The Climate Action Network (CAN) is a non-governmental environmental network which aims to promote government and individual action to limit human-induced climate change to ecologically sustainable levels. CAN produces the ECO-newsletter which is found at this site. The ECO-newsletter provides daily coverage of the negotiations on the Convention. It focuses on the corridor talk and provides a critical environmental perspective on the politicking at the negotiations.

International Institute for Sustainable Development www.iisd.ca
The Canadian-based IISD produces the multimedia Linkages Journal of which the Earth Negotiations Bulletin (ENB) is part. ENB tracks the international climate change negotiations and provides daily coverage of the COPs. The site contains information on past and upcoming international meetings related to climate change.

Resources for the Future
www.weathervane.rff.org
US think tank covering climate, AIJ and CDM. An online forum designed to provide the news media, legislators, opinion leaders and interested public with analysis and commentary on US and global policy initiatives related to climate change. Covers both political and technical aspects of climate change. Shows highly conflicting arguments from many different areas in the world and is hence a genuine forum.

World Resources Institute
www.wri.org or
www.wri.org/climchng.html
US non-governmental organisation covering the CDM and other climate-related issues. Information resources cover climate, energy and transportation.

Centre for Clean Air Policy (CCAP)
www.ccap.org
CCAP is a US NGO working on ozone and climate issues. Focus areas include baselines for AIJ and CDM.

Global Environment Information Centre
www.geic.or.jp
Based in Japan, the GEIC carries a wide range of information, including online access Global Climate Governance: Inter-linkages between the Kyoto Protocol and other multi-lateral regimes, which includes papers on **.

FLEXIBLE MECHANISMS

UNFCCC-CC:INFO/AIJ
www.unfccc.de/fccc/ccinfo/defaij.html
The Secretariat's AIJ page tracks all the AIJ projects carried out to date, and summarises the lessons learned from the AIJ experience.

UNCTAD
www.unctad.org/en/subsites/etrade/index.html
The United Nations Conference on Trade and Development (UNCTAD) site on GHG emissions trading includes information on its Greenhouse Gas Emissions Trading Policy Forum and the International Emissions Trading Association (IETA) initiative. The site provides online access to UNCTAD's CDM concept paper, a work in progress, which focuses on four areas - project design and implementation aspects, international trading aspects, the financial aspects, and the institutional aspects of the CDM.

Axel Michaelowa
www.perso.easynet.fr/~michaelo/ji.html
Michaelowa provides insight into the technical, economic and political aspects of flexible mechanisms. The site includes a history of Joint Implementation and online access to Michaelowa's publications. Publications include papers different aspects of the CDM, such as baselines for CDM projects, early crediting of emissions rights, compliance, and credit creation and sharing. Michaelowa's texts feed directly into the negotiations.

Joint Implementation Network (JIN)
www.northsea.nl/jiq/
Based in the Netherlands, JIN produces the Joint Implementation Quarterly (JIQ).

World Bank AIJ Programme www-esd.worldbank.org/aij/
This site outlines the components of the World Bank's AIJ Program, the evaluation guidelines for the AIJ pilot projects and the AIJ pilot project reports.

JI Online - US Initiative on Joint Implementation www.ji.org/ji_onlin.html
The US Environmental Protection Agency (EPA) host the US Joint Implementation site which outlines the US approach and how to apply for an AIJ project with US support. The site links directly to the US Initiative on Joint Implementation (USIJI).

Swiss AIJ Pilot Programme www.admin.ch/swissaij/
The SWAPP home page provides access to the Swiss policy on AIJ/JI, an overview of the AIJ programme and its activities and projects, and an information network. The site also provides a list of links to other useful sites.

CLIMATE CHANGE TECHNOLOGIES

Climate Technology Initiative (CTI) www.climatetech.net
The CTI is supported by the US EPA and the US Department of Energy, in collaboration with the National Renewable Energy Laboratory (NREL), the IEA and the OECD. CTI aims to make available the information and tools necessary for identifying and implementing cost-effective renewable energy and energy efficiency projects through the internet. CTI focus areas include country information exchange, expert systems and market information. The site has a good search programme.

Greenhouse Gas Technology Information Exchange www.greentie.org/
The GREENTIE site provides information on GHG mitigating technologies and gives contact details for approximately 7 500 organisations and experts. The scope of the information includes energy and GHG mitigation technologies, classified by technology expertise, industry, products etc.

Global Energy Marketplace (GEM) gem.crest.org/
The GEM site is an on-line searchable database of more than 2 500 energy efficiency and renewable energy annotated web links. The scope of the database includes case studies, reports, publications, economic analyses, product directories, discussion groups, and mitigation assessments.

BUSINESS PERSPECTIVES

Pew Center on Global Climate Change www. pewclimate.org/home.html
US big business interests (Boeing, BP, Dupont, Lockheed Martin and others) co-operate through the Pew Centre on Global Climate Change to improve understanding of policy, scientific and economic issues concerning climate change. Areas of focus include:

- Analysis of early action crediting proposals
- Impacts of policy choices on the costs of climate change mitigation
- Impacts of climate change on agriculture, water, forestry, coastal resources, health and ecosystems in the US

Enda argue that it is the most informed and reasonable of the business sites on climate change.

INTERNATIONAL ENVIRONMENTAL LAW

Centre for International Environmental aw www.econet.apc.org/ciel/index.html
Based in the USA, the Centre for International Environmental Law (CIEL) covers broad issues around international environmental law, including the protection of the global commons. With regard to the international climate change agreements, CIEL focuses on issues of compliance or non-compliance and of global climate change in foreign policy.

FIELD www.field.org.uk/climate.html
The Climate Change and Energy Programme of the Foundation for International Environmental Law and Development (FIELD) works closely with the Alliance of Small Island States (AOSIS). FIELD have assisted AOSIS in drafting a protocol that

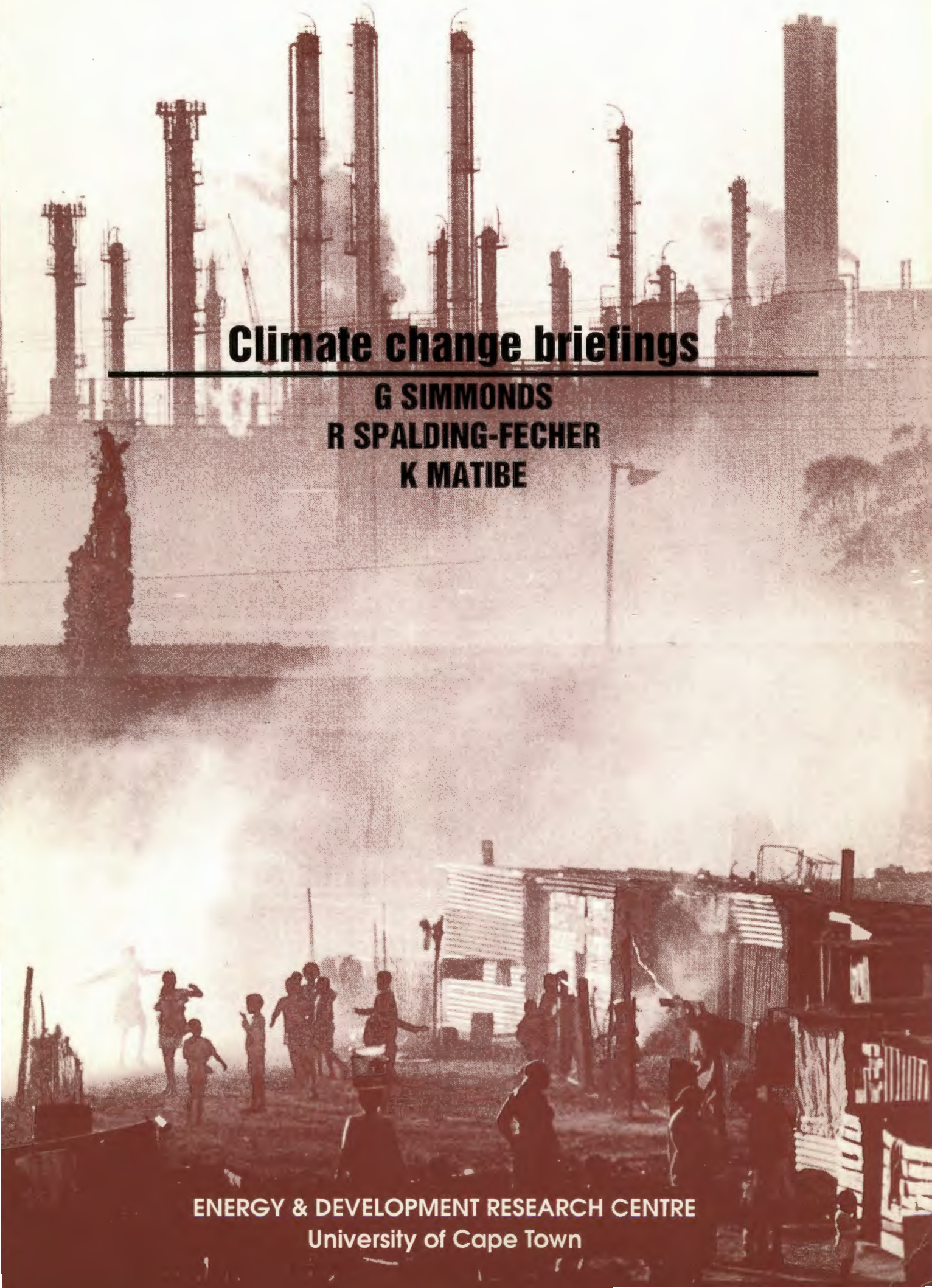
would require industrialised nations to reduce their CO_2 emissions which proved central to the negotiations around the Kyoto Protocol. Field also provided legal and policy advice around the design and operation of the GEF. In addition, the team provide insightful analysis of the CDM, its operation and design. Field publishes a journal called RECIEL which

CLIMATE CHANGE SCEPTICS

The following list of sites, produced mostly by business lobbies, express, in general, scepticism about either the science or the politics of global warming. Some are more extreme than others. The *Science and Environmental Policy Project* carry an interesting monitor of the US Press portrayal of climate change. The *Global Climate Coalition* were responsible for the huge lobbying effort that set the US Congress against Kyoto in 1997.

- Center for the Study of Carbon Dioxide and Global Change
  www.co2science.org/
- George C. Marshall Institute – environment
  www.marshall.org/gwindex.html
- Global Climate Coalition
  www.globalclimate.org/
- Science and Environmental Policy Project
  www.sepp.org/
- World Climate Report
  www.nhes.com/
- Global Climate Information Project
  www.climatefact.org/
- American Petroleum Institute
  www.api.org.globalclimate/starta.html
- Coalition for Vehicle Choice
  www.vehiclechoice.org/
- CEI: Global Warming Resource
  www.cei.org/gw.html

EDRC REPORT SERIES



Climate change briefings

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