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Special Session of the General Assembly to Review and Appraise
the Implementation of Agenda 21

Combating Global Warming: The Climate Change Convention

Since its adoption five years ago at the Earth Summit in Rio de Janeiro, the United Nations Framework Convention on Climate Change has been the centrepiece of global efforts to combat global warming. It also has been one of the international community's most essential tools in the struggle to promote sustainable development. A great deal has been accomplished since Rio -- but the most difficult decisions still lie ahead.

The Environmental Challenge

In 1898, Swedish scientist Svante Arrhenius warned that carbon dioxide emissions could lead to global warming. It was not until the 1970s, however, that scientists' growing understanding of the Earth-atmosphere system brought this previously obscure field of science to wider attention.

To give policy makers and the general public a better understanding of what researchers had learned, the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC) in 1988.

The IPCC was given a mandate to assess the state of existing knowledge about the climate system and climate change; the environmental, economic and social impacts of climate change; and possible response strategies.

The IPCC released its First Assessment Report in 1990. Approved after a painstaking peer review process by hundreds of leading scientists and experts, the Report confirmed the scientific basis for climate change. It had a powerful effect on both policy makers and the general public and strongly influenced negotiations on the Climate Change Convention.



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This is what the IPCC has found:

- Humanity's emissions of greenhouse gases are likely to cause rapid climate change. Carbon dioxide is produced when fossil fuels are burned, and its effects intensify when carbon-dioxide-absorbent forests are cut down. Methane and nitrous oxide are released as a result of agricultural practices, changes in land use and other causes. Chlorofluorocarbons (CFCs) and other gases also play a role in trapping heat in the atmosphere. By thickening the atmospheric "blanket" of greenhouse gases, mankind's emissions are upsetting the energy flows that drive the climate system.
- Climate models predict that the global temperature will rise by about 1 - 3.5C by 2100. This projection is based on current emissions trends and contains many uncertainties, particularly at the regional level. Because the climate does not respond immediately to greenhouse gas emissions, it will continue to change for hundreds of years after atmospheric concentrations have stabilized. Meanwhile, rapid and unexpected climate transitions cannot be ruled out. There is evidence that climate change may have already begun.
- Climate change will have powerful effects on the global environment. In general, the faster the climate changes, the greater will be the risk of damage. If current trends continue, the mean sea level is expected to rise some 15-95 cm by 2100, causing flooding and other damage. Climate zones (and thus ecosystems and agricultural zones) could shift towards the poles by 150-550 km in the mid-latitude regions. Forests, deserts, rangelands and other unmanaged ecosystems could become wetter, drier, hotter or colder. As a result, many will decline or fragment, and individual species will become extinct.



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- Human society will face new risks and pressures. Global food security is unlikely to be threatened, but some regions may experience food shortages and hunger. Water resources will be affected as precipitation and evaporation patterns change around the world. Physical infrastructure will be damaged, particularly by sea-level rise and by extreme events, which may increase in frequency and intensity in some regions. Economic activities, human settlements and human health will experience many direct and indirect effects. The poor are the most vulnerable to the negative effects of climate change.
- People and ecosystems will need to adapt to the future climate regime. Past and current emissions have already ensured that there will be some degree of climate change in the twenty-first century. Adapting to these effects will require a good understanding of socio-economic and natural systems, their sensitivity to climate change, and their inherent ability to adapt. Many strategies are available for promoting adaptation.
- Stabilizing atmospheric concentrations of greenhouse gases will require a major effort. Based on current trends, the growth in emissions of carbon dioxide and other greenhouse gases is expected to result in the equivalent of a doubling of pre-industrial CO₂ concentrations in the atmosphere by 2030, and a trebling by 2100. Stabilizing global CO₂ emissions at their current levels would postpone CO₂ doubling to 2100. Emissions would eventually have to fall to less than 30 per cent of their current levels if concentrations were to be stabilized at doubled CO₂ levels sometime in the twenty-second century. Such cuts would have to be made despite growing populations and an expanding world economy.



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Towards a Convention

In response to growing scientific understanding, a series of intergovernmental conferences focusing on climate change were held in the late 1980s and early 1990s. In 1990, the Second World Climate Conference called for a framework treaty on climate change. Sponsored by the WMO, UNEP and other international organizations, this conference featured negotiations and ministerial-level discussions among 137 States plus the European Community.

The final declaration, adopted after hard bargaining, did not specify any international targets for reducing emissions. However, it did support a number of principles later included in the Climate Change Convention. These were 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--where there are threats of serious or irreversible damage, a lack of scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Meanwhile, the general public was starting to react. Although not directly attributable to climate change, a series of heat waves and unusually destructive storms in the United States and elsewhere led to a series of press reports about climate change and its expected impacts. The high tide of environmental sentiment plus the 1985 discovery of the Antarctic ozone "hole" (also unrelated to climate change) further stoked the growing concern.

Then, in December 1990, the United Nations General Assembly approved the start of treaty negotiations. The Intergovernmental Negotiating Committee for a Framework



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Convention on Climate Change (INC/FCCC) met for five sessions between February 1991 and May 1992. Facing a strict deadline - the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in June 1992 -- negotiators from 150 countries finalized the Convention in just 15 months. It was adopted in New York on 9 May 1992 and opened for signature several weeks later in Rio.

The new Convention established a process for responding to climate change over the decades to come. In particular, it set up a system whereby Governments report information on their national greenhouse gas emissions and climate change strategies. This information is reviewed on a regular basis in order to track the Convention's progress. In addition, developed countries agreed to promote the transfer of funding and technology to help developing countries respond to climate change. They were also committed to taking measures aimed at returning their greenhouse gas emissions to 1990 levels by the year 2000.

The Convention entered into force on 21 March 1994 and today boasts some 165 States Parties.

The Political Challenge

Both climate change and policies to minimize its effects have enormous environmental and economic implications. The costs of climate change will vary widely from country to country.

Developed countries are responsible for over two thirds of past emissions and some 75 per cent of current emissions, but they are best positioned to protect themselves from damage. Developing countries tend to have low per capita emissions, are in great need of economic development and are more vulnerable to climate-change impacts.



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These differences have helped to shape the positions that Governments take in international talks. The key players are:

- *The European Union.* In response to environmental concerns, the EU played a leading role in launching the Convention negotiations. In general, the EU supported binding targets and timetables for emissions reduction. Other countries did not agree, and these were not included in the treaty. The European Union also supported allowing countries to adhere to joint targets. This now affects the internal discussion between the EU's poorer members, who argue for higher emissions quotas within any future overall EU target, and the richer members, who would have to reduce their emissions further to compensate for this.
- *The JUSSCANZ countries--the non-EU developed countries--*including Japan, the United States, Switzerland, Canada, Australia, New Zealand and Norway. The non-European members of this group tend to share a concern for a more "flexible" approach to limiting greenhouse gas emissions. The United States in particular played a key role in the drafting of article 4.2, on developed-country commitments to limit emissions. Despite what has been called the "creative ambiguity" of the final text, it is almost universally interpreted as committing developed countries to make a sincere effort to return their greenhouse gas emissions to 1990 levels by 2000. When the Clinton Administration came into office in 1993, it softened the United States line and explicitly announced the US intention to pursue stabilization.
- *Countries with economies in transition.* The industrialized countries of Central and Eastern Europe and the former Soviet Union are significant emitters of greenhouse gases. However, due to the economic slump following the end of communism, they will likely succeed in keeping their emissions below 1990 levels through 2000. Afterwards,



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however, their economies and emissions levels are expected to revive.

- *The Group of 77 and China.* Developing countries work through the Group of 77 to develop common positions on emissions-reduction commitments and financial and technological transfers. However, the G77 does not always present a united front, owing to the widely differing interests of its members. For example, China and others have enormous coal resources that are vital to their economic development. African countries tend to focus on vulnerability and impacts. Many of the Asian economic "tigers" have concerns about the possibility of being the next in line for emissions-reduction targets. Countries with large forestry sectors are sensitive to the implications of developing forests as carbon "sinks".
- *The Association of Small Island States.* The AOSIS countries played a prominent role in galvanizing support for the Convention. They are particularly vulnerable to the risk of sea-level rise and therefore strongly support rapid action to reduce emissions.
- *The Organization of Petroleum Exporting Countries.* OPEC members tend to be concerned about the likely impact on their economies if other countries reduce their use of oil. Saudi Arabia, Kuwait and others have emphasized the existence of scientific uncertainty and argued that the convention process should move forward cautiously.
- *Business.* The first business groups to attend the climate talks as observers represented energy-intensive firms concerned about the negative economic implications of a convention. More recently, other business sectors have started to follow the process more closely, including the insurance sector, which sees itself as vulnerable to increased storms and other possible climate change



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impacts, and clean energy firms that see market opportunities.

- *Environmentalists.* Green groups have been active in the climate change arena since the very beginning. Many are active in lobbying delegates and the media and produce newsletters during international meetings. The majority are from developed countries, although constant efforts are made to promote the participation of more non-governmental organizations from developing countries.
- *Local authorities.* Many cities around the world have launched climate change plans that are even more ambitious than those of their national Governments. Urban governments are critically important because of their role in managing energy utilities, public transport and other emissions-producing activities of the public sector. Mayors and other urban leaders have joined together in an association to present their views at Convention-related meetings.

Recent Scientific and Political Developments

After the Convention was adopted in Rio, the Intergovernmental Negotiating Committee (INC) that drafted it continued its preparatory work, meeting for another six sessions to discuss matters relating to commitments, arrangements for the financial mechanism, technical and financial support to developing countries, and procedural and institutional matters. The INC was dissolved after its eleventh and final session in February 1995, and the Conference of the Parties (COP) became the Convention's ultimate authority. The COP held its first session in Berlin from 28 March to 7 April 1995.

The Convention required COP-1 to review whether the commitment of developed countries to take measures aimed at returning their emissions to 1990 levels by 2000 was adequate



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for meeting the Convention's objective. The Parties agreed that new commitments were indeed needed for the post-2000 period. They established the Ad hoc Group on the Berlin Mandate (AGBM) to draft "a protocol or another legal instrument" for adoption at COP-3 in 1997.

The Berlin Mandate process is considering steps involving emissions of all greenhouse gases. It is also considering setting quantified objectives for limiting and reducing emissions within specified time-frames such as 2005, 2010 and 2020. It does not require introduction of any new commitments for developing countries.

The IPCC's Second Assessment Report was adopted soon after the Berlin meeting, in December 1995. The Report was reviewed by some 2,000 scientists and experts worldwide. It was soon widely known for concluding that "the balance of evidence suggests that there is a discernible human influence on global climate". However, the Report did much more -- for example, confirming the availability of various cost-effective strategies for combating climate change.

The COP held its second session from 8 to 19 July 1996. Ministers released a declaration stressing the need to accelerate talks on how to strengthen the Climate Change Convention and endorsed the Second Assessment Report "as currently the most comprehensive and authoritative assessment of the science of climate change, its impacts and response options now available". They further stated that the Report "should provide a scientific basis for urgently strengthening action at the global, regional and national levels, particularly action by Annex I (industrialized) countries to limit and reduce emissions of greenhouse gases".

COP-3 will be held from 1 to 12 December 1997 in Kyoto, Japan. It is expected to adopt new commitments requiring developed countries to reduce their greenhouse gas emissions



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after 2000. If COP-3 is successful, it will help to generate the momentum needed to combat climate change in the twenty-first century.

What Countries Are Doing to Control Emissions

The sharing of information by Governments is central to how the Climate Change Convention works. Parties must therefore submit "national communications" to the COP on a regular basis. This information about national greenhouse gas emissions, international cooperation and national activities is reviewed periodically so that the parties can track the Convention's effectiveness and draw lessons for future national and global action.

The 1996 review of national communications from developed countries (developing countries will start making their initial submissions in 1997) reveals that carbon dioxide emissions continue to rise in most of them. Comparing the data from 1990 inventories with projections for 2000 shows carbon dioxide emissions rising over the decade if additional measures are not adopted. The major exceptions are the countries with economies in transition. For methane, all but three parties project that their emissions will decline or stabilize over the decade. Nitrous oxide trends are not clear, although some countries project major decreases.

The data also show that carbon dioxide accounts for 80.5 per cent of total greenhouse gas emissions from developed countries. Fuel combustion is confirmed as the most important source of CO₂. With the 33 countries included accounting for around 63 per cent of the global CO₂ emissions in 1990, this seems to confirm carbon dioxide as the most important greenhouse gas resulting from human activities.

Developed countries are exploring a wide range of climate change policies and measures. The policies Governments choose



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are generally dictated by national circumstances such as political structure and the overall economic situation. Many are "no-regrets" measures that have environmental or economic benefits irrespective of climate change concerns. In addition to regulatory and economic instruments, parties are promoting voluntary agreements with industry and public authorities. Other measures involve research and development, and information and education.

Specific measures are being used for most of the major economic sectors. Policies for the energy sector (the largest source of emissions for many countries) include switching to low- or no-carbon fuels, reforming market regulations to spur competition, and removing subsidies on coal. Industry-related policies include voluntary arrangements, standards, financial incentives and liberalized energy prices.

The focus in the residential, commercial and institutional sector is on energy-efficiency standards for new buildings, higher energy prices and public information campaigns. Agricultural measures include reducing herd sizes and fertilizer use and improving waste management. While most Governments project an expansion of the transportation sector, relatively few measures for controlling its emissions were reported.

The Twenty-first Century

As of December 1996, the Berlin Mandate talks on future developed-country commitments were preparing to enter the final negotiating phase. An agreed text must be circulated to Governments for review by June 1997. This text will be the subject of continued intense negotiations at meetings to be held in Bonn in March, August and October. Some of the key issues now being debated are these:

- *Binding timetables and targets for emissions reductions.* A number of Governments (including some EU members) are



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calling for 10 per cent reductions in CO₂ by 2005. Some (such as the low-lying island States) want an even more ambitious cut of 20 per cent by that date. Still others (including Australia, Canada, Japan and the United States) argue that a 2005 date is unrealistic and propose objectives for the 2010-2015 period.

- *Coordinated vs. flexible policies.* Some Governments (notably EU members) argue the need for internationally coordinated policies. Others say it would be more cost-efficient to allow each country to adopt the policies and measures best suited to its national circumstances.
- *Common vs. differentiated commitments.* There are differing points of view on whether all developed countries should have the same targets and timetable, or whether it would be fairer if different countries had different commitments based on various possible formulae (e.g. per capita targets). Critics of differentiation are concerned that it poses too many methodological and political problems.
- *Implications for developing countries.* The Berlin Mandate talks address new commitments for developed countries only (they also address how to advance the implementation of existing commitments by all parties). However, some developed countries have offered proposals that would allow other countries to adhere to any future agreement on a voluntary basis. Meanwhile, a number of developing countries want to address the agreement's possible impacts on their economies and trade.

Conclusion

The Convention is an ongoing process dealing with such vital issues as the submission of information about national actions and the transfer of financial support to developing countries. But



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clearly the centre of attention in 1997 will be the drafting of the Kyoto accord.

In the time remaining, it seems unlikely that all of the proposals now on the table can be worked out in detail. Some of the unfinished ideas about how to implement developed country commitments could form the basis for continuing negotiations after 1997. What is needed now is an agreement that is strong and convincing enough to give investors and consumers the right economic signals. This would make the Berlin Mandate a success and open the way to further action in the years to come.

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