Selected International Legal Materials on Global Warming and Climate Change

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SELECTED MATERIALS

SELECTED INTERNATIONAL LEGAL MATERIALS ON GLOBAL WARMING AND CLIMATE CHANGE

The following primer is a collection of selected international legal materials for climate change, global warming, and sea level rise. These materials comprise a significant portion of documents and information which has been devised, and is being actively utilized, to confront emerging issues in international environmental law.

Participants in the drafting of the various materials include high-level delegates and other representatives of sovereign nations, official members of international organizations (e.g., the U.N., UNEP, IPCC, and WMO) who are often responsible for coordinating, promoting, and hosting these meetings, and agents of non-governmental organizations attempting to get involved in the early stages of a global climate change convention. These materials document the evolution of the international understanding and agreement on the scientific, policy, and legal aspects of climate change, global warming, and sea level rise and accentuate the differences and disputes which will inevitably be the focus of future deliberations.

In spite of significant advances in communication techniques, dissemination of basic materials on international environmental law, such as the ones enclosed, has proven to be a difficult and expensive task. It is not uncommon for many governmental and NGO representatives, and members of the public and media, to find obtaining public materials on international environmental issues a difficult, if not impossible, task. The Centre for International Environmental Law, in conjunction with the American University Journal of International Law and Policy, is pleased to provide the following reproductions of several important resolutions, conference statements, and declarations.

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## SELECTED INTERNATIONAL LEGAL MATERIALS FOR GLOBAL WARMING

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1. Humanity is conducting an unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war. The Earth's atmosphere is being changed at an unprecedented rate by pollutants resulting from human activities, inefficient and wasteful fossil fuel use and the effects of rapid population growth in many regions. These changes represent a major threat to international security and are already having harmful consequences over many parts of the globe.

2. Far-reaching impacts will be caused by global warming and sea level rise, which are becoming increasingly evident as a result of continued growth in atmospheric concentrations of carbon dioxide and other greenhouse gases. Other major impacts are occurring from ozone-layer depletion resulting in increased damage from ultra-violet radiation. The best predictions available indicate potentially severe economic and social dislocation for present and future generations, which will worsen international tensions and increase risk of conflicts among and within nations. It is imperative to act now.

3. These were the major conclusions of the International Conference of The Changing Atmosphere: Implications for Global Security, held in Toronto, June 27-30, 1988. More than 300 scientists and policy makers from 48 countries, United Nations organizations, other international bodies and non-governmental organizations participated in the sessions.

4. The Conference called upon governments, the United Nations and its specialized agencies, industry, educational institutions, non-governmental organizations and individuals to take specific actions to reduce the impending crisis caused by pollution of the atmosphere. No country can tackle this problem in isolation. International cooperation in the management and monitoring of, and research on, this shared resource is essential.

5. The Conference called upon governments to work with urgency towards an Action Plan for the Protection of the Atmosphere. This should include an international framework convention, while encouraging other standard-setting agreements along the way, as well as na-
tional legislation to provide for protection of the global atmosphere. The Conference also called upon governments to establish a World Atmosphere Fund financed in part by a levy on the fossil fuel consumption of industrialized countries to mobilize a substantial part of the resources needed for these measures.

THE ISSUE

6. Continuing alteration of the global atmosphere threatens global security, the world economy, and the natural environment through:
   .1 Climate warming, rising sea-level, altered precipitation patterns and changed frequency of climatic extremes induced by the "heat trap" effects of greenhouse gases;
   .2 Depletion of the ozone layer;
   .3 Long range transport of toxic chemicals and acidifying substances.

7. These changes will:
   .1 Imperil human health and well being;
   .2 Diminish global food security, through increase soil erosion and greater shifts and uncertainties in agricultural production, particularly for many vulnerable regions;
   .3 Change the distribution and seasonal availability of fresh water resources.
   .4 Increase political instability and the potential for international conflict;
   .5 Jeopardize prospects for sustainable development and reduction of poverty;
   .6 Accelerate extinction of animal and plant species upon which human survival depends.
   .7 Alter yield, productivity and biological diversity of natural and managed ecosystems, particularly forests.

8. If rapid action is not taken now by the countries of the world, these problems will become progressively more serious, more difficult to reverse, and more costly to address.

SCIENTIFIC BASIS FOR CONCERN

9. The Conference calls for urgent work on an Action Plan for Protection of the Atmosphere. This Action Plan, complemented by national action, should address the problems of climate warming, ozone
layer depletion, long-range transport of toxic chemicals and acidification.

**Climate Warming**

.1 There has been an observed increase of globally-averaged temperature of 0.7°C in the past century which is consistent with theoretical greenhouse gas predictions. The accelerating increase in concentrations of greenhouse gases in the atmosphere, if continued, will result in a probable rise in the mean surface temperature of the Earth of 1.5 to 4.5 degrees Celsius before the middle of the next century.

.2 Marked regional variations in the amount of warming are expected. For example, at high latitudes the warming may be twice the global average. Also, the warming would be accompanied by changes in the amount and distribution of rainfall and in changes in atmospheric and ocean circulation patterns. The natural variability of the atmosphere and climate will continue and be superimposed on the long-term trend, forced by human activities.

.3 If current trends continue, the rates and magnitude of climatic change in the next century may substantially exceed those experienced over the last 5000 years. Such high rates of change would be sufficiently disruptive that no country is likely to benefit in total from climatic change.

.4 The climate change will continue so long as the greenhouse gases accumulate in the atmosphere.

.5 There can be a time lag of the order of decades between the emission of gases into the atmosphere and their full manifestation in atmospheric and biological consequences. Past emissions have already committed planet earth to a significant warming.

.6 Global warming will accelerate the present sea level rise. This will probably be of the order of 30 cm but could possibly be as much as 1.5 m by the middle of the next century. This could inundate low-lying coastal lands and islands, and reduce coastal water supplies by increasing salt water intrusion. Many densely populated deltas and adjacent agricultural lands would be threatened. The frequency of tropical cyclones may increase and storm tracks may change with consequent devastating impacts on coastal areas and islands by floods and storm surges.

.7 Deforestation and bad agricultural practices are contributing to desertification and are reducing the biological storage of carbon
dioxide, thereby contributing to the increase of this most important greenhouse gas. Deforestation and poor agricultural practices are also contributing additional greenhouse gases such as nitrous oxide and methane.

**Ozone Layer Depletion**

1. Increase levels of damaging ultra-violet radiation as stratospheric ozone shield thins will cause a significant rise in the occurrence of skin cancer and eye damage, and will be harmful to many biological species. Each 1% decline in ozone is expected to cause a 4% - 6% increase in certain kinds of skin cancer. A particular concern is the possible combined effects on unmanaged ecosystems of both increased ultraviolet radiation and climatic changes.

2. Over the last decade, a decline of 3% in the ozone layer has occurred at mid-latitudes in the Southern Hemisphere, possibly accompanying the appearance of the Antarctic ozone hole; although there is more meteorological variability, there are indications that a smaller decline has occurred in the northern hemisphere. Changes of the ozone layer will also change the climate and the circulation of the atmosphere.

**Acidification**

1. In improving the quality of the air in their cities, many industrialized countries unintentionally sent increasing amounts of pollution across national boundaries in Europe and North America, contributing to the acidification of distant environments. This was manifest in growing damage to lakes, soils, plants, animals, forests and fisheries. Failure to control automobile pollution in some regions has seriously contributed to the problem. The principal damage agents are oxides of sulphur and nitrogen as well as volatile hydrocarbons. These can also corrode buildings and metallic structures, causing overall, billions of dollars of damage annually.

10. The various issues arising from pollution of Earth’s atmosphere by a number of substances, are often closely interrelated, both chemically and from the point of view of potential control strategies. For example, chlorofluorocarbons (CFCs) both destroy ozone and are greenhouse gases; conservation of fossil fuels would contribute to solv-
ing both acid rain and climate change problems.

SECURITY: ECONOMIC AND SOCIAL CONCERNS

11. As the UN Report on the Relationship Between Disarmament And Development states: "The world can either continue to pursue the arms race with characteristic vigour or move consciously and with delibereate speed towards a more stable and balanced social and economic development within a more sustainable international economic and political order. It cannot do both. It must be acknowledged that the arms race and development are in a competitive relationship, particularly in terms of resources, but also in the vital dimension of attitudes and perceptions." The same consideration applies to the vital issue of protecting the global atmospheric commons from the growing peril of climate change and other atmospheric changes. Unanticipated and unplanned change may well become the major non-military threat to international security and the future of the global economy.

12. There is no concern more fundamental than access to food and water. Currently levels of global food security are inadequate but even those will be most difficult to maintain into the future, given projected agricultural production levels and population and income growth rates. The climate changes envisaged will aggravate the problem of uncertainty in food security. Climate change is being induced by the already prosperous, but its effects are suffered most acutely by the poor. It is imperative for governments and the international community to sustain the agricultural and marine resource base and provide development opportunities for the poor in light of this growing environmental threat to global food security.

13. The countries of the industrially developed world are the main source of greenhouse gases and therefore bear the main responsibility to the world community for ensuring that measures are implemented to address the issue posed by climate change. At the same time, they must see that the developing nations of the world, whose problems are greatly aggravated by population growth, are assisted and not inhibited in improving their economies and the living conditions of their citizens. This will necessitate a wide range of measures, including significant additional energy use in those countries and compensating reductions in industrialized countries. The transition to a sustainable future will require investments in energy efficiency and non-fossil energy sources. In order to ensure that these investments occur, the global community
must not only halt the current net transfer of resources from developing countries, but actually reverse it. This reversal should embrace the relevant technologies involved, taking into account the implications for industry.

14. A coalition of reason is required, in particular, a rapid reduction of both North-South inequalities and East-West tensions if we are to achieve the understanding and agreements needed to secure a sustainable future for planet Earth and its inhabitants.

15. It takes a long time to develop an international consensus on complex issues such as these, to negotiate, sign, and ratify international environmental instruments and to begin to implement them. It is therefore imperative that action on serious negotiations start now.

LEGAL ASPECTS


17. These are important first steps and should be actively used and respected by all nations. However, there is no overall convention constituting a comprehensive international framework that can address the interrelated problems of the global atmosphere, or that is directed towards the issues of climate change.

A CALL FOR ACTION

18. The Conference urges immediate action by governments, the United Nations and their specialized agencies, industry, educational institutions and individuals to counter the ongoing degradation of the atmosphere.

19. The following actions are mostly designed to slow and eventually reverse deterioration of the atmosphere. There are also a number of strategies for adapting to changes that must be considered. These are
dealt with primarily in the recommendations of the working groups.

**Recommended Immediate Action:**

**A. By Governments and Industry**

20. Ratification of the Montreal Protocol on Substances that Deplete the Ozone Layer. The Protocol should be revised in 1990 to ensure nearly complete elimination of emissions of fully-halogenated CFCs by the year 2000. Additional measures to limit other ozone-destroying halocarbons should be considered.

21. In order to reduce the risks of future global warming, energy policies must be designed to reduce emissions of CO2 and other trace gases. Stabilizing atmospheric concentrations of CO2 is an imperative goal. It is currently estimated to require reductions of more than 50% from present emission levels. Energy research and development budgets must be massively directed to low and non-CO2 emitting energy options and to studies undertaken to further refine the target reductions.

22. An initial global goal should be to reduce CO2 emissions by approximately 20 percent of 1988 levels by the year 2005. Clearly, the industrialized nations have a responsibility to lead the way, both through their national energy policies and their bilateral and multilateral assistance arrangements. About one-half of this reduction would be sought from energy efficiency and other conservation measures. The other half should be effected by modifications in supplies.

23. Targets for energy efficiency improvements should be directly related to reductions in CO2 and other greenhouse gases. A challenging target would be to achieve the 10 percent energy efficiency improvements by 2005. Improving energy efficiency is not precisely the same as reducing total carbon emissions and the detailed policies will not all be familiar ones. A detailed study of the systems implications of this target should be made. Equally, targets for energy supply should also be directly related to reductions in CO2 and other greenhouse gases. As with efficiency, a challenging target would again be to achieve the 10 percent energy supply improvements by 2005. A detailed study of the systems implications of this target should also be made.

24. The contributions to achieving this goal will vary from region to region; some countries have already demonstrated a capability for increasing efficiency by more than 2 percent a year for over a decade.
25. Apart from efficiency measures, the desired reduction will require (i) switching to lower CO2 emitting fuels, (ii) reviewing strategies for the implementation of renewable energy especially advanced biomass conversion technologies; (iii) revisiting the nuclear power option, which lost credibility due to problems related to nuclear safety, radioactive wastes, and nuclear weapons proliferation. If these problems can be solved, through improved engineering designs and institutional arrangements, nuclear power could have a role to play in lowering CO2 emissions.

26. Negotiations on ways to achieve the above mentioned reductions should be initiated now.

27. Systems must be initiated to encourage, review and approve major new projects for energy efficiency.

28. There must be vigorous application of existing technologies to reduce (i) emissions of acidifying substances to reach the critical load that the environment can bear; (ii) substances which are precursors of tropospheric ozone; and (iii) other non-CO2 greenhouse gases, in addition to gains made through reduction of fossil fuel combustion.

29. Products should be labelled to allow consumers to judge the extent and nature of contamination of the atmosphere which arises from the manufacture and use of the product.

B. By Member Governments of the United Nations Non-Governmental Organizations and Relevant International Bodies

30. Initiate the development of comprehensive global convention as a framework for protocols on the protection of the atmosphere. The convention should emphasize such key elements as the free international exchange of information and support of research and monitoring, and should provide a framework for specific protocols for addressing particular issues, taking into account existing international law. This should be vigorously pursued at the international workshop on law and policy to be held in Ottawa early in 1989, the high level policy conference on Climate Change in the Netherlands in autumn 1989, the World Energy Conference, Canada in 1989 and at the Second World Climate Conference, Geneva, June 1990, with a view to having the principles and components of such a convention ready for consideration at the inter-governmental Conference on Sustainable Development in 1992. These activities should in no way impede simultaneous national, bilat-
eral and regional actions and agreements to deal with specific problems such as acidification and greenhouse gas emissions.

31. Support the work of the Intergovernmental Panel on Climate Change to conduct continuing assessments of scientific results and initiate government to government discussion of responses and strategies.

32. Devote increasing resources to research and monitoring efforts within the World Climate Programme, the International Geosphere Biosphere Programme and Human Response to Global Change Programme. It is particularly important to understand how climate changes on a regional scale are related to an overall global change of climate. Emphasis should also be placed on better determining the role of oceans in global heat transport and the flux of greenhouse gases.

33. Significantly increase funding for research, development and transfer of information on renewable energy, if necessary by the establishment of additional and bridging programmes; extend technology transfer with particular emphasis on the needs of the developing countries; upgrade efforts to meet obligations for the development and transfer of technology embodied in existing agreements.

34. Expand funding for more extensive technology transfer and technical cooperation projects in coastal zone protection and management.

35. Reduce deforestation and increase afforestation making use of proposals such as those in World Commission on Environment and Development's (WECD) "Our Common Future", including the establishment of a Trust Fund to provide adequate incentives to enable developing nations to manage their tropical forest resources sustainably.

36. Develop and support technical cooperation projects to allow developing nations to participate in international mitigation efforts, monitoring, research and analysis related to the changing atmosphere.

37. Ensure that this Conference Statement, the working group reports and the full Proceedings of the International Conference on the Changing Atmosphere (to be published in the Fall, 1988) are made available to all nations, the conferences mentioned under paragraph 30, and other future events dealing with related issues.

38. Increase funding to non-governmental organizations to allow the establishment and improvement of environmental education programmes and public awareness campaigns related to the changing atmosphere. Such programmes would aim at sharpening perception of the issues, and changing public values and behavior with respect to the
environment.

39. Financial support should be allocated for environmental education in primary and secondary schools and at universities. Consideration should be given to establishing special units in university departments for addressing the crucial issues of global change.

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The recommended actions above are mostly of a general nature and common to a number of conference working groups. Individual reports are being prepared and will be available within a few weeks.
PROTECTION OF GLOBAL CLIMATE FOR PRESENT AND FUTURE GENERATIONS OF MANKIND

RESOLUTION BY THE UNITED NATIONS GENERAL ASSEMBLY

JANUARY 27, 1989

A/RES/43/53
Forty-third session
Agenda item 148

The General Assembly,

Welcoming with appreciation the initiative taken by the Government of Malta in proposing for consideration by the Assembly the item entitled “Conservation of climate as part of the common heritage of mankind,”

Concerned that certain human activities could change global climate patterns, threatening present and future generations with potentially severe economic and social consequences,

Noting with concern that the emerging evidence indicates that continued growth in atmospheric concentrations of “greenhouse” gases could produce global warming with an eventual rise in sea levels, the effects of which could be disastrous for mankind if timely steps are not taken at all levels,

Recognizing the need for additional research and scientific studies into all sources and causes of climate change,

Concerned also that emissions of certain substances are depleting the ozone layer and thereby exposing the earth’s surface to increased ultraviolet radiation, which may pose a threat to, inter alia, human health, agricultural productivity and animal and marine life, and reaffirming in this context the appeal, contained in its resolution 42/182 of 11 December 1987, to all States that have not yet done so to consider becoming parties to the Vienna Convention for the Protection of the Ozone Layer, adopted on 22 March 1985, and the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted on 16 September 1987, as soon as possible,

Recalling its resolutions 42/186 and 42/187 of 11 December 1987 on the Environmental Perspective to the Year 2000 and Beyond and on the report of the World Commission on Environment and Development, respectively,

Convinced that changes in climate have an impact on development,

Aware that a considerable amount of valuable work, particularly at the scientific level and in the legal field, has already been initiated on
climate change, in particular by the United Nations Environment Programme, the World Meteorological Organization and the International Council of Scientific Unions and under the auspices of individual States,

Welcoming the convening in 1990 of a second World Climate Conference,

Recalling also the conclusions of the meeting held at Villach, Austria, in 1985,¹ which, inter alia recommended a programme on climate change to be promoted by Governments and the scientific community with the collaboration of the World Meteorological Organization, the United Nations Environment Programme and the International Council of Scientific Unions,

Convinced that climate change affects humanity as a whole and should be confronted within a global framework so as to take into account the vital interests of all mankind,

1. Recognizes that climate change is a common concern of mankind, since climate is an essential condition which sustains life on earth;

2. Determines that necessary and timely action should be taken to deal with climate change within a global framework;

3. Reaffirms its resolution 42/184 of 11 December 1987, in which, inter alia, it agreed with the Governing Council of the United Nations Environment Programme that the Programme should attach importance to the problem of global climate change and that the Executive Director of the United Nations Environment Programme should ensure that the Programme co-operates closely with the World Meteorological Organization and the International Council of Scientific Unions and maintains an active, influential role in the World Climate Programme;

4. Considers that activities in support of the World Climate Programme, approved by the Congress and Executive Council of the World Meteorological Organization and elaborated in the system-wide medium-term environment programme for the period 1990-1995, which was approved by the Governing Council of the United Nations Environment Programme,² be accorded high priority by the relevant organs and programmes of the United Nations system;

5. Endorses the action of the World Meteorological Organization and the United Nations Environment Programme in jointly establishing an Intergovernmental Panel on Climate Change to provide interna-

tionally co-ordinated scientific assessments of the magnitude, timing and potential environmental and socio-economic impact of climate change and realistic response strategies, and expresses appreciation for the work already initiated by the Panel;

6. Urges Governments, intergovernmental and non-governmental organizations and scientific institutions to treat climate change as a priority issue, to undertake and promote specific, co-operative action-oriented programmes and research so as to increase understanding on all sources and causes of climate change, including its regional aspects and specific time-frames as well as the "cause and effect" relationship of human activities and climate, and to contribute, as appropriate, with human and financial resources to efforts to protect the global climate;

7. Calls upon all relevant organizations and programmes of the United Nations system to support the work of the Intergovernmental Panel on Climate Change;

8. Encourages the convening of conferences on climate change, particularly on global warming, at the national, regional and global levels in order to make the international community better aware of the importance of dealing effectively and in a timely manner with all aspects of climate change resulting from certain human activities;

9. Calls upon Governments and intergovernmental organizations to collaborate in making every effort to prevent detrimental effects on climate and activities which affect the ecological balance, and also calls upon non-governmental organizations, industry and other productive sectors to play their due role;

10. Requests the Secretary-General of the World Meteorological Organization and the Executive Director of the United Nations Environment Programme, through the Intergovernmental Panel on Climate Change, immediately to initiate action leading, as soon as possible, to a comprehensive review and recommendations with respect to:

(a) The state of knowledge of the science of climate and climatic change;

(b) Programmes and studies on the social and economic impact of climate change, including global warming;

(c) Possible response strategies to delay, limit or mitigate the impact of adverse climate change;

(d) The identification and possible strengthening of relevant existing international legal instruments having a bearing on climate;

(e) Elements for inclusion in a possible future international convention on climate;

11. Also requests the Secretary-General to bring the present resolution to the attention of all Governments, as well as intergovernmental
organizations, non-governmental organizations in consultative status with the Economic and Social Council and well-established scientific institutions with expertise in matters concerning climate;

12. *Further requests* the Secretary-General to report to the General Assembly at its forty-fourth session on the implementation of the present resolution;

13. *Decides* to include this question in the provisional agenda of its forty-fourth session, without prejudice to the application of the principle of biennialization.
SELECTED MATERIALS

PROTECTION OF THE ATMOSPHERE: STATEMENT OF THE MEETING OF LEGAL AND POLICY EXPERTS

OTTAWA, ONTARIO, CANADA

FEBRUARY 22, 1989

INTRODUCTION

In June 1988, Canada hosted an international atmospheric conference in Toronto entitled "The Changing Atmosphere: Implications for Global Security". At the opening of the conference, the Prime Minister, the Right Honourable Brian Mulroney, spoke strongly in favour of a concerted international effort to achieve concrete progress in dealing with this mounting environmental concern. He expressed his hope that the international community could develop, by 1992, an international accord or elements thereof for the protection of the atmosphere. As a step toward this goal, a Meeting of Legal and Policy Experts was held in Ottawa on February 20 to 22, 1989.

The purpose of the Meeting of Experts was:

(a) to develop further the legal and institutional framework for dealing with existing and emerging atmospheric problems and, where possible, to agree on principles that might form the basis of an umbrella framework convention for the protection of the atmosphere and for a convention on climate change;

(b) to identify areas where, for legal, technical or scientific reasons, a consensus may not be achievable and to suggest ways for overcoming such obstacles; and

(c) to develop a series of recommendations for future action, including one to the effect that the report of the meeting and draft principles be forwarded to a qualified multilateral organization for future consideration.

The Meeting of Experts was attended by some 80 legal and policy experts in their personal capacity, from government, non-government (including the World Meteorological Organization and the United Nations Environment Programme), and academic institutions. Participants included a broad spectrum of experts from developed and developing countries and from every continent.

The Meeting of Experts recommended that an international convention or conventions with appropriate protocols are needed as a means to ensure rapid international action to protect the atmosphere and limit the rate of climate change. It also recommended that protocols to limit
carbon dioxide and other greenhouse gas concentrations in the atmosphere are urgently required, either within the framework of a Convention on Climate Change or a Convention on the Protection of the Atmosphere and that negotiation of protocols on priority issues should proceed simultaneously with the development of any such convention. Along with the development of a climate change convention, work on principles for a framework convention on protection of the atmosphere should proceed. The Meeting of Experts expressed the wish that its recommendations for, and observations on, the content of an international agreement or agreements be forwarded as soon a possible for consideration by international fora and meetings competent to carry matters forward in this important area of environmental concern.

A. THE FOLLOWING ELEMENTS SHOULD BE ADDRESSED IN ANY FRAMEWORK "UMBRELLA" CONVENTION ON PROTECTION OF THE ATMOSPHERE:

1. Atmosphere

The following two variants are proposed for the definition of atmosphere:

"Atmosphere means the resource constituted by global mass of air surrounding the earth.

"Atmosphere" means all or part of the collection of gases which lie within the limits of the troposphere and stratosphere as defined by the WMO international standard atmosphere.

2. Atmospheric interference

"Atmospheric interference" means any change in the physical or chemical condition of the atmosphere resulting directly or indirectly from human activities and producing effects of such a nature as to appreciably endanger human health, harm living resources, ecosystems and material property, impair amenities or interfere with other legitimate uses of the environment;

"International atmospheric interference" means any atmospheric interference of which not both the origin and the effects are wholly located within the area under the national jurisdiction of one State.

Note: The notion of "atmospheric interference" was found useful as a key to the obligations of the Convention. It should include both the
elements of appreciable danger and appreciable harm (or any other adjective such as "significant", "substantial", etc.) depending on the degree of tolerance to harm [threshold] that may be adopted. When the interference affects the atmosphere globally, qualifying it as "international" seems unnecessary.

3. **Common resource of vital interest**

Without prejudice to the sovereignty of States over the airspace superjacent to their territory as recognized by international law, and for the purposes of this Convention, the atmosphere, as defined, constitutes a common resource of vital interest to mankind.

4. **Obligation to protect and preserve the atmosphere**

States have the obligation to protect and preserve the atmosphere.

5. **Sovereign right of States to permit human activities and the limits thereto**

The sovereign right of States to permit in their territories or under their jurisdiction or control all human activities that they consider appropriate must be compatible (must conform) with their obligations to protect and preserve the atmosphere.

*Note:* For historical reasons and because it contains a relevant principle of international law, transcriptions of Principle 21 of the Stockholm Declaration should be included in the preamble.

6. **Implementation of the Convention through protocols**

The contracting parties shall endeavour to enter into protocols for the implementation of the obligations of this convention with contracting parties and non-contracting parties regarding atmospheric interferences.

7. **Measures to prevent, reduce or control**

States shall take all appropriate measures to prevent, reduce or control any international atmospheric interference or significant risk thereof arising from activities under their jurisdiction or control. To this end they shall, in accordance with the best practicable means at
their disposal and their capabilities, develop and implement policies and strategies and as a part of them control measures taking into account the nature, extent and effects of the atmospheric interference and the extent to which the atmospheric interference arises from activities under their jurisdiction or control.

8. **No transfer of damage or hazards or transformation of one type of atmospheric interference into another interference**

In taking measures to prevent, reduce or control international atmospheric interferences, States shall act so as not to transfer, directly or indirectly, damage or hazards from one area to another area or transform one type of atmospheric interference into another type of international atmospheric or other environmental interference.

*Note:* Accepted, with the proviso that the text should convey the idea that the rule therein contained cannot be applied rigidly, as is recognized in the commentary of the Report by Professor Lammers.

9. **Additional domestic measures**

The provisions of the Convention shall in no way affect the right of the Contracting Parties to maintain or adopt additional domestic measures, provided that these measures are not incompatible with the obligations of the Contracting Parties under the Convention.

10. **Bilateral, multilateral or regional agreements and arrangements**

(1) The Contracting Parties may enter into bilateral, multilateral or regional agreements or arrangements with Contracting Parties and Non-Contracting Parties regarding atmospheric interferences, provided such agreements or arrangements are not incompatible with the object and purposes of this Convention.

(2) The provisions of this Convention shall not affect any agreements or arrangements, referred to in paragraph 1 above, which the Contracting Parties have entered into prior to the entry into force of this Convention for them for the purpose of preventing, reducing or controlling atmospheric interferences, provided the provision of such agreements or arrangements are not incompatible with the object and purposes of this Convention.
11. General obligation to co-operate

States shall co-operate, directly or through competent international organizations, to protect the atmosphere.

12. Policies and Strategies

States shall, in accordance with the means at their disposal and their capabilities, co-operate in the elaboration, formulation, co-ordination or harmonization of policies and strategies including measures to prevent, reduce or control activities under their jurisdiction or control causing or likely to cause atmospheric interferences.

13. Exchange of Information

States shall exchange scientific, technical, socio-economic, commercial and other information relevant for the protection of the atmosphere, and facilitate and encourage the exchange of such information.

Note: The question of the treatment of confidential information will require consideration in the drafting of a conventional provision on this matter.

14. Research and Systematic Observations

(1) States shall, as appropriate, and in accordance with the means at their disposal and their capabilities, undertake, promote and co-operate in the conduct of systematic collection and transmission of data, research and scientific assessments on:
   (a) the state of the atmosphere;
   (b) activities, practices, processes and substances that may cause international atmospheric interferences;
   (c) alternative activities, practices, processes and substances and their socio-economic and environmental implications, aimed at preventing, reducing or controlling international atmospheric interferences;
   (d) the nature and extent of the effects of any modifications of the atmosphere on human health, living resources and ecosystems, material property, amenities and other legitimate uses of the environment.

(2) States shall promote the role of appropriate world data centres in ensuring the validation and transmission of observational data.
15. Development and transfer of technology

In order to prevent, reduce and control atmospheric interferences and taking into account particularly the needs of developing countries, States shall co-operate in promoting the development and transfer of relevant technologies and the provision of technical assistance.

16. Prior notice and environmental impact assessment of planned activities

When a State has reasonable grounds for believing that planned activities under its jurisdiction or control may cause an atmospheric interference outside such jurisdiction, it shall:
   (a) give timely notice to the competent international organization [and to the other States concerned];
   (b) make an assessment of the potential effects of such activities before carrying out or permitting the planned activities;
   (c) on its own initiative or upon request of the competent international organization [or of the other States concerned], provide such relevant information as will permit the competent international organization [or the other States concerned] to make an assessment of the probable effects of the planned activities.

Note: Texts between [] are applicable in the context of the protection of the atmosphere but should be deleted for the purposes of an instrument on climate protection.

This principle would be appropriate for a subsidiary instrument, but would require further consideration for inclusion in a framework convention.

17. Consultations

   (1) Consultations shall be held, upon request, at an early stage between, on the one hand, the competent international organization and States concerned and, on the other hand, States under whose jurisdiction or control activities which require prior notice are planned.
   (2) Consultations shall also be held, upon request, once such activities are being carried out.

18. Emergency situations

   (1) When a State becomes aware of an emergency situation or other
change of circumstances arising from incidents or activities under its jurisdiction or control and suddenly giving rise to an atmospheric interference or significant risk thereof causing or likely to cause harm in an area under the jurisdiction of another State or in an area beyond the limits of national jurisdiction, it shall immediately take appropriate measure, to control the cause of the emergency situation and immediately notify other States affected or likely to be affected by such an atmospheric interference, as well as the competent international organizations.

(2) It shall provide those States and organizations with such pertinent information as will enable them to minimize the harmful effects of the atmospheric interference and co-operate with them, in order to prevent or minimize the harmful effects of an emergency situation or other change of circumstances referred to in paragraph 1.

(3) States shall develop contingency plans in order to prevent or minimize the harmful effects of such an emergency situation or other change of circumstances referred to in paragraph 1.

Note: This principle would not be suitable for an instrument on climate protection.

19. Liability, compensation or other relief

Contracting Parties shall develop appropriate principles of liability, compensation or other relief under relevant protocols.

Note: In relation to a convention on climate change, certain novel ideas concerning liability and compensation were considered in workshop 3 and recommended for further elaboration.

20. Peaceful settlement of disputes

(1) If a dispute arises concerning the interpretation or application of this Convention, the parties to the dispute shall, at the request of any one of them, consult among themselves as soon as possible with a view to having the dispute resolved by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to means of peaceful settlement provided for by a competent international organization, or other peaceful means of their own choice.

(2) If the parties to a dispute concerning the interpretation or application of this Convention have not agreed on a means of resolving it within 12 months of the request for consultation pursuant to paragraph 1 above, the dispute shall be referred at the request of any party to the
dispute, for settlement in accordance with the procedure determined by
the operation of paragraphs 6, 7 and 8 below.

(3) Paragraph 2 above shall similarly apply in the event that the
dispute has not been resolved within 18 months after the parties to the
dispute agree on a means of resolving the dispute other than through
arbitration or settlement of the dispute by the International Court of
Justice, unless the parties otherwise agree.

(4) Each Contracting Party, when signing, ratifying, accepting, ap-
proving or acceding to this Convention, or at any time thereafter, may
declare that it accepts as compulsory one or both of the following
means for the settlement of disputes concerning the interpretation or
application of this Convention:

(a) submission of the dispute to the International Court of
Justice;

(b) submission of the dispute to arbitration in accordance with
Annex [X] to this Convention.

(5) A declaration made under paragraph 4 above shall not affect the
operation of paragraphs 1, 2 and 3 above;

(6) A Contracting Party that has not made a declaration under para-
graph 4 above or in respect of which a declaration is no longer in force,
shall be deemed to have accepted submission of the dispute to the In-
ternational Court of Justice.

(7) If the parties to a dispute have accepted the same means for the
settlement of a dispute referred to in paragraph 4 above, the dispute
may be submitted only to the International Court of Justice, unless the
parties otherwise agree.

(8) If the parties to a dispute have not accepted the same means for
the settlement of a dispute referred to in paragraph 4 above, or if they
have both accepted both means, the dispute may be submitted only to
the International Court of Justice, unless the parties otherwise agree.

(9) The provisions of this principle shall apply with respect to any
protocol to this Convention except as otherwise provided in the protocol
concerned.

21. World Atmospheric Trust Fund

States should consider the possibility of establishing a World Atmo-
sphere Trust Fund. The beneficiaries of the Trust Fund should be de-
veloping countries.
22. Co-ordination of existing institutional arrangements

States should consider co-ordinating and integrating the institutional arrangements for the various atmosphere-related regimes, such as the Vienna Ozone Convention and the ECE Convention on Long-range Transboundary Air Pollution, and their protocols.

23. Monitoring

States should consider whether any monitoring system established under the Convention might usefully serve to provide early warning and to integrate and co-ordinate monitoring systems worldwide.

24. Participation in the convention

The Convention and any protocol shall be opened for signature or accession by States and by regional economic organizations. The question of the form of participation of other international organizations in the Convention requires further consideration.

B. In respect of the development of a Convention on climate change, the following considerations and elements should inter alia be taken into account as well as the relevant paragraphs under Section A above.

1. General approach

The format of the Vienna Ozone Convention should be used as guidance in formulating the framework convention on climate change. Utilizing the United Nations and its agencies is the appropriate institutional approach. The Intergovernmental Panel on Climate Change (IPCC) in particular should be encouraged or requested to concentrate the appropriate scientific and legal efforts.

2. Possible protocols

The following subjects should be considered for possible protocols to a climate change convention:
* CO2;
* methane;
* CFCs and halons;
* N2O;
* tropospheric ozone;
Further reductions of CFCs and halons should be considered in connection with the context of the Montreal Ozone Protocol. The topics mentioned above might be considered together at times, but the principal approach should be to deal with them separately in order to facilitate progress. The possibility of trade-offs between CO2 equivalents should also be considered, however, in order to allow flexibility while still achieving overall improvements. The reference to the World Climate Trust Fund should be read in connection with provision 9 below.

3. Monitoring

A climate change convention should include a monitoring provision covering procedures and obligations regarding the collection of appropriate information and utilizing as far as possible existing monitoring activities at the national and international levels. The results of the IPCC's inventory of current monitoring systems should be the basis for developing these provisions. The monitoring function should include not only gathering pertinent information, but also analyzing, interpreting and disseminating that information.

4. Reporting

The climate change convention should require periodic reports by each State in describing in detail its progress, or lack of progress, in meeting the goals and obligations of the convention. These reports should be analyzed by an independent group of appropriately qualified experts with respect to the requirements in the Convention and then transmitted to the Conference of the Parties. Attention should be given to possibility of mobilizing public opinion as a means of increasing compliance with the Convention.

5. Conference of the Parties

A Conference of the Parties of the climate change convention shall be established as provided in the following provision, with the addition that the Conference should make liberal use of possibilities of observer status and consultative status with respect to paragraph 5 below.

(1) A Conference of the Parties is hereby established. The first meeting of the Conference of the Parties shall be convened by the Secreta-
(1) The Conference of the Parties shall establish, not later than one year after entry into force of this Convention, an inter-

timely designated body under article [..] not later than

one year after entry into force of this Convention. Thereafter, ordinary
meetings of the Conference of the Parties shall be held at regular inter-
vals to be determined by the Conference at its first meeting.

(2) Extraordinary meetings of the Conference of the Parties shall be
held at such other times as may be deemed necessary by the Confer-
ence, or at the written request of any Party, provided that, within six
months of the request being communicated to them by the Secretariat,
it is supported by at least one third of the Parties.

(3) The Conference of the Parties shall by consensus agree upon and
adopt rules of procedure and financial rules for itself and for any sub-

sidiary bodies it may establish, as well as financial provisions governing
the functioning of the Secretariat.

(4) The Conference of the Parties shall keep under continuous review
the implementation of this Convention and, in addition, shall:

(a) establish the form and the intervals for transmitting the in-
formation to be submitted in accordance with article [..] and

consider such information as well as reports submitted by any
subsidiary body;

(b) review the scientific information on climate change;

(c) promote, in accordance with article[. . .], the harmonization
of appropriate policies, strategies and measures for minimizing
the release of substances interfering or likely to interfere with
the climate, and make recommendations on any other measures
relating to this Convention;

(d) adopt, in accordance with article [.. .], programmes for re-
search, systematic observations, scientific and technological co-

operation, the [sic]

(e) consider and adopt, as required, in accordance with articles
[. . .], amendments to this Convention and its annexes;

(f) consider amendments to any protocol, as well as to any an-

nexes thereto, and, if so decided, recommend their adoption to
the Parties to the protocol concerned;

(g) consider and adopt, as required, in accordance with arti-

cle[. . .] additional annexes to this Convention;

(h) consider and adopt, as required, protocols in accordance with
article [.. .].

(i) establish such subsidiary bodies as are deemed necessary for
the implementation of this Convention;

(j) seek, where appropriate, the services of competent interna-
tional bodies and scientific committees, in scientific research, sys-

tematic observations and other activities pertinent to the objec-
tives of this Convention, and make use as appropriate of information from these bodies and committees;
(k) consider and undertake any additional action that may be required for the achievement of the purposes of this Convention.
(5) The United Nations, its specialized agencies and the International Atomic Energy Agency, as well as any State not party of this Convention, may be represented at meetings of the Conference of the Parties by observers. Any body or agency, whether national or international, governmental or non-governmental, qualified in fields relating to the protection of the climate which has informed the Secretariat of its wish to be represented at a meeting of the Conference of the Parties as an observer may be admitted unless at least one-third of the parties present object. The admission and participation of observers shall be subject to the rules of procedure adopted by the Conference of the Parties.

6. Secretariat

The possibility of establishing a Secretariat for the climate change convention with the functions described in the following provision should be considered in the long-term; in the short-term the IPCC Secretariat, or possibly the UNEP or WMO Secretariat, should be requested to perform also the functions of the Secretariat for the climate change convention.

(1) The functions of the Secretariat shall be:
(a) to review and circulate information in accordance with, inter alia, articles [.] [.
(b) to prepare and transmit reports based upon information received in accordance with articles [.] [.
(c) to perform the functions assigned to it by any protocol;
(d) to prepare reports on its activities carried out in implementation of its functions under this Convention and present them to the Conference of the Parties;
(e) to ensure the necessary co-ordination with other relevant international bodies, and in particular to enter into such administrative and contractual arrangements as may be required for the effective discharge of its functions;
(f) to perform such other functions as may be determined by the Conference of the Parties.
(2) The Secretariat functions will be carried out on an interim basis
SELECTED MATERIALS

by [.] until the completion of the first ordinary meeting of the Conference of the Parties held pursuant to article [.] . At its first ordinary meeting, the Conference of the Parties shall designate the Secretariat from amongst those existing competent international organizations which have signified their willingness to carry out the Secretariat functions under this Convention.

7. Experts panel

The Conference of the Parties should establish a panel of independent experts representing different fields related to climate change. Members of the panel should meet as an expert committee to evaluate the reports submitted by States as described in the Reporting provision above, accompanied by their determinations, to the Conference of the Parties, and to assist the Conference of the Parties in all other scientific questions, especially under paragraphs (a), (b), (c) and (d) of the Conference of the Parties article provision above. Representatives of the concerned specialized agencies such as WMO, WHO, FAO and UNESCO, as well as observers of agreed non-governmental organizations, may participate in the meetings of the expert committee.

8. Budget Fund

The climate change convention should include a provision regarding a Budget Fund that would be used to pay for the Secretariat's operation, the monitoring activities (including establishing monitoring stations in developing countries), and encouraging and assisting developing countries to participate in meetings and other activities pursuant to the convention. The Budget Fund should be funded by country assessments based on ability to pay.

9. World Climate Trust Fund

The climate change convention should provide that States shall consider the possibility of establishing a World Climate Trust Fund for use in initiating and supporting all necessary activities to reduce emissions of greenhouse gases and to mitigate effects of climate change. The beneficiaries of that Fund should be developing countries. The Trust Fund should be funded from three possible sources: contributions by countries (voluntary or assessed), "user fees" for activities causing climate change, and fines for violations of the convention.
10. Participation by developing countries

As described in point 8 above, the climate change convention should develop, encourage and facilitate participation by developing countries in activities relating to the climate change convention and to promote monitoring of human activities and effects related to climate change. In addition, the convention should establish institutional means to make possible participation by developing countries in negotiations leading to a climate change convention or protocols, and to assist in preventing or reducing, mitigating and adapting to climate change. Unilateral national action should also be encouraged. The convention should envision that some of those technology transfers may involve transfers between developing countries and that transfers should be designed in accordance with the absorption and adoption capabilities of the receiving State.

11. Nature of obligations

Formulation of obligations under a framework convention to protect the atmosphere might differ from the specific obligations adopted in conventions dealing with specific atmospheric issues, such as climate change. With regard to a convention on climate change, such obligations should focus in particular on the need to prevent, limit or reduce as far as possible the emissions of gases and human activities having or likely to have an adverse effect on climate.
INTERNATIONAL CONFERENCE ON GLOBAL WARMING AND CLIMATE CHANGE: PERSPECTIVES FROM DEVELOPING COUNTRIES³
TATA CONFERENCE STATEMENT

NEW DELHI, INDIA
FEBRUARY 21-23, 1989

1. A RAPIDLY WARMING EARTH AND RISING OCEANS

1.1

Global warming is the greatest crisis ever faced collectively by humankind; unlike other earlier crises, it is global in nature, threatens the very survival of civilization and promises to throw up only losers over the entire international socio-economic fabric. The reason for such a potential apocalyptic scenario is simple: climatic changes of geological proportions are occurring over timespans as short as a single human lifetime. The World Bank, regional development banks, and other development assistance agencies will need to reappraise their policies in light of the impending global warming. In particular, developing countries will need assistance in the transition phase from traditional fossil fuels to more appropriate energy forms, and in promoting the preservation of forests and reforestation.

1.2

Certain atmospheric emissions resulting from various human activities are unambiguously responsible for this crisis. They include carbon dioxide - the necessary product of combustion of fossil fuels, CFCs (chlorofluorocarbons) from refrigeration and halons from firefighting systems, methane from the anaerobic digestion of organic matter, and nitrous oxide from increased use of chemical fertilizers. The problem is compounded by deforestation which contributes to increased carbon dioxide and other greenhouse gases emissions due to wood combustion, as

well as to decreased carbon fixation in biomass due to reduced tree
cover. These gases absorb and partially trap the heat radiated by the
earth, reradiate some of it back to the surface, and this leads to a
warming of the lower atmosphere. The current global heat balance is
thus upset and leads to a warming of the earth's surface. Scientific
meetings in 1985-87 at Villach, Austria and Bellagio, Italy, were criti-
cal in developing an updated scientific consensus on global warming.

1.3

The World Commission on Environment and Development, in its re-
port, called upon governments "to initiate discussions leading to a con-
vention..." on measures to limit global warming and sea level rise.
The Commission added that "if a convention on containment policies
cannot be implemented rapidly, governments should adopt contingency
strategies and plans for adaptation to climate change."

1.4

The UN General Assembly's first debate on "Our Common Future"
in October 1987 was marked by references to global warming drama-
tized by a plea from the President of the Republic of the Maldives for
international action to prevent the disappearance of his nation beneath
rising sea levels.

1.5

Presently, the contribution of carbon dioxide to global warming is
roughly fifty percent; the other half is due to the other gases (methane,
CFCs, nitrous oxide, etc.). These latter gases are one-thousand to ten-
thousand times more effective than carbon dioxide and consequently
are dangerous even at their present trace concentration levels.

1.6

In addition, positive feedback effects are very important in global
warming. A consideration of the interactions of warming with the large
biotically-controlled pools of carbon on land suggests that there will be
further release of carbon dioxide and methane from these sources with
increase in temperature. The cause of this additional release is the
stimulation of the respiration and the decay of organic matter. Over
the past fifteen years, the rate of accumulation of carbon dioxide in the
atmosphere has been about 1.5 ppm per year. However, measurements conducted over the past 18 months indicate that the rate has increased to 2.4 ppm. This is consistent with the positive feedback hypothesis.

1.7

The atmosphere is already committed to a warming of 0.7 to 2 degrees C due to the emission of greenhouse gases up to the early eighties. At current rates of emissions, committed global warming will increase by 0.2 to 0.5 degree C every decade, and by the end of this century, the cumulative surface warming will be large enough to rise above the background climate fluctuations. Much of the committed warming due to current emissions will be stored in the oceans and will show up in the atmosphere several decades later. However, this can lead to an upsetting of the temperature gradients in the world. Consequently, wind and ocean currents, and precipitation patterns will be affected. The higher temperatures will also lead to a rise in the sea level. Sea level rise of the order of 5 to 24 cms per decade can be expected as against the background increase of the order of 12 cms per century. This implies that coastal areas presently less than 1 to 3 metres above the sea level will be threatened by the middle of the next century. The most-affected areas would be the river deltas which are also the most populated areas in the world.

1.8

Thus human activities have opened an era of rapid climate changes that, if unchecked, promise an extraordinary reduction in the potential of the earth to support a reasonable quality of life for all.

1.9

This topic has been reviewed recently in several international conferences. The conclusions have universally pointed to the need for early action to deflect or stop these climatic changes. The WMO/UNEP scientific conference at Villach, Austria in 1985 and the Villach-Bellagio meetings of 1987 both expressed the extent of the consensus that exists among scientists that the warming will proceed rapidly and presents a serious threat to the human race. The Canadian Conference on the Changing Atmosphere held in Toronto in June 1988 produced a clear and detailed statement that drew on the earlier conclusions to call for early action to reduce emissions of carbon by reducing use of fossil
fuels and by improving management of forests. The purpose was to reduce rates of change of climate in the next decade to rates similar to those experienced over recent centuries. All of these discussions of both effects and potential corrective actions have recognized the special interests of the developing nations.

1.10

This conference is the first arranged to address the particular concerns of the developing nations, which are struggling to improve the standards of life of their people. Nearly 4 billion of the present human population of 5 billion live in developing countries. They need accelerated economic growth but on an ecologically sustainable basis. It is against this background that the participants of the International Conference on “Global Warming and Climate Change: Perspectives from Developing Countries,” who met at New Delhi, India, from February 21 to 23, 1989, present the following analysis and recommendations.

2. THE NATURE OF THE PROBLEM

2.1

There are three distinctly different but strongly inter-related parts of the problem: (i) Global chemical pollution; (ii) The greenhouse effect of these pollutants; (iii) The global climate change, resulting from the greenhouse effect induced by these pollutants. Significant scientific progress has been made in understanding and observationally documenting many of these changes. This progress has led to an international consensus among scientists on the significance and the seriousness of the potential global scale warming and the accompanying rise in sea level. The predicted warming rates for the next several decades are unprecedented in terms of climate changes of the last several thousand years.

2.1.1 Global Chemical Pollution:

Instrumented observations of the air have demonstrated that:

1. The concentrations of several gases, such as Carbon-dioxide; Methane; Chlorofluorocarbons amongst several others, have increased significantly during the last century and are continuing to increase substantially.

2. The increases in the pollutants are caused by a variety of human
activities including:
- Fossil-fuel combustion
- Other industrial activities
- Deforestation, biomass burning, and the accelerated decay of organic matter in the soil
(3) The pollution is global in extent and spreads through the strata of the atmosphere.

2.1.2 The Greenhouse Effect of the Pollutants:

(1) The gases trap the heat radiation from the earth, and, hence, the observed rise in the gas concentrations has increased the heat trapped in the planet. This so-called greenhouse effect is a well understood phenomenon and is based on the sound physical principles.

(2) Until the 1960's, carbon-dioxide increase was the major source of heating. This picture has changed dramatically in the recent decades during which several non-carbondioxide gases contributed as much as carbon-dioxide to the increase in the planetary heating.

(3) Thus as time goes by, the problem is getting not only larger in magnitude but more complex in character.

2.1.3 Global Warming and Climate Changes:

(1) The most direct effect of the increased trapping of heat radiation is a global warming.

(2) The warming will not be globally uniform but will differ significantly between geographical regions; in addition, the warming may vary during different seasons. As a result, the altered temperature gradients will alter the pattern of winds and precipitation distribution regionally. The details of these localized changes are not clearly understood.

(3) The observed global temperature records, that include ocean and land temperatures, reveal a warming trend during this century; the magnitude of the warming trend is within the range predicted by models. Furthermore, the latter half of the decade of the 1980's registered the warmest temperatures on record.

(4) The warming of the oceans, as well as the melting of ice sheets and glaciers resulting from the warming of the land will lead to a rise in the sea-level.
2.1.4 Major Issues that Need to be Resolved

(1) Biosphere-climate interactions:
The biosphere controls the atmospheric concentration of greenhouse gases like CO2 and CH4, and biotic processes like respiration are regulated by temperatures. Interactions between the biosphere and climate can play a significant role in determining the future concentrations of greenhouse gases like CO2 and methane.

(2) Cloud-climate interactions:
One of the largest sources of uncertainty in predictions of regional and global climate changes is the response of clouds to the warming. The tropical monsoon cloud-systems are one of the biggest factors that regulate the global heat budget and these clouds respond significantly to small changes in ocean temperatures. There is an important need for a focussed analysis of this problem.

(3) Future atmospheric concentrations of greenhouse gases:
Another large source of uncertainty is the rates of future increase in the concentrations of the greenhouse gases. This will depend on the scenarios adopted for future energy demands and supplies and other human activities.

(4) Deforestation, biomass burning and emission of particles:
We have to assess how these localized changes, which have a profound influence on the regional climate, interact with the global scale warming effect of the gaseous pollutants.

(5) The role of the oceans:
The oceans play a dominant role in governing the timing and the rate of the warming, because of the enormous heat capacity of oceans compared to land. We are at the very early stages of understanding the interactions between the greenhouse warming and the dynamics of the oceans. Significant improvement in understanding this problem is needed to improve the predictions of regional climate changes.

3. POTENTIAL IMPACT

3.1

Global Warming is occurring at a time when many of the world’s life-support systems are already stressed by the growth of population, industrial development, and need for agricultural land and the unsustainable exploitation of natural resources. These stresses are caused both by the careless and short-sighted actions and as a consequence of poverty and underdevelopment. They include increasing air and water
pollution, deforestation, soil erosion and salination, among others.

3.2

A disregard for long-term consequences of industrial development and population expansion have resulted in air and water pollution, deforestation, and soil erosion among others.

3.3 On all of these changes, global warming and associated climate change will bring additional consequences, such as:

- higher temperatures
- changes in precipitation
- widespread run off
- reduction in fresh water availability
- global rising of mean sea level.

3.4 Consequences

3.4.1

The consequences of these climate changes will affect every aspect of society and the material environment. Their impacts will cause a strain particularly in developing countries, where already, in many cases, existing conditions allow for only marginal existence for both people and ecosystems. Areas of particular concern include:

- agriculture
- water availability
- human health
- human habitation
- natural ecosystems, including biological diversity.

3.4.2

Global food supplies may be maintained through shifts in productive regions and technological advances. However, changes in local production and food distribution may aggravate circumstances which are already unacceptable in some areas, particularly in low latitude regions where precipitation is already highly episodic. Sea-level may rise above one meter within the next century, which is about eight times as fast as
occurred over the last century. Since already 70% of the world's coastlines are eroding, this problem will aggravate an already difficult situation in many areas where half the global population resides.

Effects of sea-level rise include:
- loss of land and human habitation
- penetration of salt into drinking and agricultural water supplies
- beach erosion
- loss of wetlands and wildlife habitat, including air fauna
- damage of infrastructure including harbours, cooling water facilities, coastal defence systems, roads and other infrastructure.

3.4.3

Lower latitude coastlines, frequently found in developing countries, are particularly vulnerable to these effects due to the particular morphology of these coastlines.

3.4.4

Island states would be particularly vulnerable to sea level rise and are in grave danger of facing serious climate aberrations long before the sea level rises to a point of total submergence.

3.4.5

Tropical storms may occur with greater intensity and will certainly penetrate further inland due to sea-level rise, resulting in greater loss of life.

3.5 Ecosystems

3.5.1

Sea-level rise will devastate coastal ecosystems such as mangrove seaways, which no longer migrate inland because of human habitation near the coast.

3.5.2

Terrestrial ecosystems will need to move poleward in response to the warming. However, the rate of warming may exceed the ability of eco-
systems to migrate, (or corridors for migration may not be available); so loss of species or reduction in number can be expected.

3.5.3
In particular, canopy forests may suffer substantial declines.

3.5.4
Loss of carbon from forests and soils due to increased respiration and reduced biomass would add substantially to the build up of CO2 and thus to the rate of warming.

3.6. **Human Health**

3.6.1
Direct and indirect consequences of climate change such as increased air and water pollution, spread of tropical disease vectors and decreased fuelwood availability have important consequences for human health.

3.6.2
Since climate change and rising sea-level will occur at rates which far exceed historical values, adjustment to these changes will be difficult and costly for human societies in the less developed countries.

4. **The Need for Action: Initiating Appropriate Responses.**

4.1.
As the foregoing findings indicate, the buildup of greenhouse gases in the atmosphere threatens societies and natural environment in fundamental ways. While significant uncertainties remain, particularly in characterizing the timing and seriousness of regional effects, available information is more than sufficient to justify responsive actions by governments and others. Political leaders and the public should treat the prospects of global warming and adverse climate changes with utmost
seriousness and act accordingly. Under the circumstances, governments and others should begin the process of planning and implementing a concerted international response that will require major actions and cooperation on the part of all nations.

4.2.

It is sometimes said that it is too early to act on global warming. A more accurate appraisal appears to be that societies are already late in responding. It is also said sometimes that a little warming might be beneficial. It seems very likely that the issue is no longer a little warming—the earth is probably already committed to that. The issue now is how big a warming?

4.3.

It is not difficult to sketch the general contours of what must be done to contain the greenhouse warming. Societies should act aggressively on an international basis to do the following:

4.3.1. increase sharply the efficiency with which fossil fuels are used; the technology is available today to do this;

4.3.2. introduce non-fossil energy technologies on a priority basis. The principal available candidates are renewable energy sources and nuclear power; the choice between them is sure to be hotly debated;

4.3.3. phase out CFCs completely in this century; the technologies are being developed to do this; steps should be taken to ensure that such technologies are available to developing nations on non commercial terms as soon as they are ready for commercial use;

4.3.4. promote a large-scale international effort to halt deforestation in the tropics and move to net forest growth globally; and
4.3.5. *stabilize world population well before it doubles again.*

4.4.

Other steps are also needed. Natural gas is preferable to oil and coal as a transitional fossil fuel. Traditional pollution control measures can reduce nitrogen oxide and hydrocarbon emissions.

4.5

Beyond this general list, there are immense complexities in deciding exactly who should do what, when, and how. When we consider the greenhouse issue, we find an important asymmetry. While the great bulk of past and current emissions of greenhouse gases have come from the highly industrial nations, it is possible that many of the most serious effects of global climate change will occur in the developing countries.

4.6.

A number of factors would likely produce this result: (1) developing countries are many times more dependent on natural resources and natural systems (including crop and grazing land, forests, fisheries, and monsoon patterns), and these natural systems are heavily dependent on climate; (2) the poorer countries, already stressed by other problems, lack the financial and technical resources to make the expensive and difficult changes that adapting to climate changes would require; (3) many developing countries have particular vulnerabilities, such as vulnerability to rising sea levels and to “natural” disasters such as floods, droughts, and unusually powerful storms or other weather events, which would increase as a result of the greenhouse warming; and (4) climate disruption in developed countries will lead to a serious threat to global food security, since traditional bread basket countries may not have surplus left for export either on concessional or commercial terms.

4.7.

Clearly the first and largest response to the global warming threat should come from the industrial nations. They should not wait on international agreement to begin a major effort to increase energy efficiency and reduce wasteful fossil fuel use. The industrial countries have the
primary responsibilities for reducing use of fossil fuel use. The industrial countries have the primary responsibilities for reducing use of fossil fuels and CFCs and for committing major economic, technological, and political resources to this issue.

4.8.

Despite the prominence of the industrial countries in bringing on this global problem, the contribution of the developing countries is already significant and is projected to grow in the future. Today, about twenty percent of the emissions of the principal greenhouse gas, carbon dioxide, is estimated to be coming from fossil fuels used in developing countries. By the middle of the next century, this figure could climb to well over 50 percent. While historically the developed countries have a record of large scale deforestation, today carbon dioxide emissions from deforestation (perhaps 20 percent of the total) come largely from the developing countries.

4.9.

The developing countries' contribution in response to the greenhouse challenge should be carried out in a way that enhances, rather than diminishes, development prospects. Where these are in conflict, priority should be given to development, which brings so many clear and needed benefits, particularly for the poorest 60% of the population in developing countries. Only in this way can these populations be brought to the minimal level of health and resilience needed to cope with environmental stress and stabilize population sizes.

4.10.

When resources are inadequate for mounting programmes both for needed development of the poor and achieving globally desirable reduction of greenhouse gas emissions, developed countries should be asked to contribute the difference. Climate protection should be seen as a challenge to be met in partnership with the development assistance community and the industrial countries and not simply as another problem for the developing world. Having caused the major share of the problem and possessing the resources to do something about it, the industrial countries have a special responsibility to assist the developing countries in finding and financing appropriate responses.
4.11.

The challenge before us, that of global warming of the magnitude projected today, cannot be met without the full participation, in equal partnership, of the developing world. They are potential contributors in future and burden-sharers today, for, their development—sustainable growth—depends in a crucial way in planning ahead in the right way.

4.12.

Development of options for responsible action and the successful implementation of international-agreed steps both require that the developing countries take part in the debates today—scientific, socio-economic, and political—and in the negotiations ahead.

4.12.1.

The participation has to be at least at three levels:

1. Public: The public needs to know what is going on. The help of discerning media and women's groups and NGO's, especially in the developing world is important.

2. Individual: Individuals and groups with or group expertise in research should be encouraged to undertake efforts: relevant scientific and policy research and studies. Their interaction with their counterparts in other countries should be encouraged.

3. Governments(s): Must receive expert advice and analysis, for their role is critical for negotiations and action.

4.12.2.

The responses of the developing countries should be in the following areas in particular:

- Improving Energy Efficiency. Studies have shown that both industrial and traditional sectors of developing countries economies can be inefficient users of energy resources.

- Pioneering Renewable Energy Use. The developing countries have the potential for being on the forefront in the use of solar energy, biofuels, and other renewable technologies, all of which should grow sharply on a global basis in the years ahead.
MOVING TO NET FOREST GROWTH AND HALTING DEFORESTATION. This will require major international cooperation and additional financing, perhaps including international arrangements through which debt relief is exchanged for forest conservation.

SLOWING POPULATION GROWTH. The greenhouse warming challenge is but one of many that will be more tractable in a world of modest rather than explosive population expansions.

4.13.

To arouse the people of the world to the danger of the greenhouse effect, the available data and audio-visual documents need to be employed extensively. The major responsibility towards this action rests on developed countries and also, on informed persons from developing countries—and these two groups can cooperate.


These and other steps needed to address global warming are justified by concerns apart from climate change. They will produce many benefits beyond protecting the earth’s preserving the biological wealth of the tropics, reducing urban air pollution and acid rain, enhancing energy security, and perhaps most important, demonstrating that the nations of the world can work together on a matter of great importance.

5. THE INTERNATIONAL PROCESS

5.1.

Because climate change is a truly global problem it requires global solutions, involving cooperative actions by all countries. Implicit in this is the necessity for differentiated responses by industrialized and developing countries. Industrialized countries will need to take earlier remedial actions and to assist developing country efforts, in particular through resource and technology transfer. The World Bank, regional development banks, and other development institutions will all have to be involved.

5.2.

An international process is, in fact, already under way on several
SELECTED MATERIALS

fronts. In the realm of science, the International Council of Scientific Unions (ICSU), with the cooperation of WMO, UNEP and UNESCO, has launched the International Geosphere-Biosphere Program (IGBP), which represents an integrated scientific approach to problems of global change. In addition, various national scientific research efforts on greenhouse gases are also being coordinated through WMO and UNEP.

5.3.

On the diplomatic front, WMO and UNEP have sponsored the Intergovernmental Panel on Climate Change (IPCC), which is to develop a comprehensive initial assessment of the scientific evidence and impacts of climate change, and strategies for policy responses. This assessment is expected to be completed by August 1990. A Maltese initiative at the 1988 UN General Assembly gained global support as an expression of international concern over the problem and, of particular relevance, called for the initiation of work in international legal instruments to address climate change.

5.4.

In addition to governments and multilateral institutions, non-governmental organizations are playing an important role in the international process. Meetings in Toronto, Washington, D.C., Woods Hole, Turin, and now in New Delhi, and planned conferences in Brazil and Egypt, all contribute to an exchange of information and to sensitizing public opinion and policy makers to the dimensions of the climate problem and the needed responses. The media has a very important role to play and these meetings should seek opportunities to reach the public through the press, radio, and TV. As demonstrated by some initiatives, such as the Turin Conference, public understanding and awareness on global warming can and must be further developed. The task is to provide sound information on the state of scientific knowledge and on action that should be taken not only by decision-makers but also by the public at large.

5.5.

A unique characteristic of the international response to climate change is the essential linkage between science and policy. Because of the complexities involved and the many different sectors in which ac-
tions are required, there is no single solution or technological quickfix. The problem will need to be aggregated and partial solutions sought—as exemplified in the 1987 Montreal Protocol on protection of the ozone layer. Recognizing that policy decisions will have to take place under conditions of scientific uncertainty, it would be desirable and practical to aim for interim decision points for policy actions based on the best available scientific evidence and consensus. If nations delay actions in an elusive quest for scientific certainty, the risks and costs will mount unacceptably. In order to attain quick results, industrialized countries should adopt regulatory measures immediately and support developing countries with resources and technology so that their future contribution to global warming is curtailed. Equitability should be the key component of such decisions, if they are to be accepted wholeheartedly by the developing countries.

5.6.

Coordinated international policies can be developed through negotiations leading to international conventions to promote research, monitoring and exchange of data. Such agreements should be supported by protocols which address specific remedial actions in such areas as reduction of CO2 and other trace gases, energy efficiency, renewable energy sources, technology transfer, and the deforestation problem.

5.7.

Particular note should be made of the role of women in the developmental process. In many countries, including India, women are already playing an essential role in addressing issues relevant to climate change. Women's organizations are active in family planning, energy conservation and efficiency, afforestation programmes, and use of renewable energy (e.g. biogas, solar cookers, etc.). As women are on the front line of development efforts, their particular insights and perspectives need to be sought at both the community and the international levels.
SELECTED MATERIALS

6. PERSPECTIVES FROM DEVELOPING COUNTRIES AND AGENDA FOR ACTION

6.1. ACTION BY DEVELOPED COUNTRIES

It is the perception of the participants of the conference that the industrial countries, being primarily responsible for increased concentration of carbon dioxide and other greenhouse gases in the earth’s atmosphere, must take immediate steps to reduce further increases in the level of carbon dioxide emissions. Actions to be taken by them must cover:

6.1.1 Improvements in energy efficiency

The record of the last 16 years within the OECD countries has been most heartening and in some cases spectacular. However, there is evidence that the momentum of energy conservation is slowing down as a result largely of decreased energy prices. Governments must institute a system of incentives and disincentives for bringing about rapid and further improvements in energy efficiency in these countries.

6.1.2.

In order to promote energy efficiency and alternative energy sources, fees or taxes must be imposed by the developed countries on the emission of greenhouse gases from fossil fuel use. In this respect, several developing countries have followed very heavy taxation measures, resulting in high prices of petroleum products in particular. This contrasts with the short-sighted decline, particularly in gasoline prices in several western countries, which would only bring about larger increases in private transport, an expanding fleet of gas guzzling automobiles, and a slowing down of public transportation developments. This situation must be reversed through a determined implementation of a new fossil fuel tax regime. Undoubtedly, some of these measures will have adverse regional impacts, such as on coal producing regions, but local solutions and support will need to be found for a smooth transition to lower fossil fuel production in these locations.

6.1.3.

The proposed tax on greenhouse gas emissions should provide fi-
nances for measures that can protect global climate. Such funds should be used for:

1) Large scale research, development and demonstration activities related to renewable energy technologies;
2) Transfer of energy efficient technologies from the developed to the developing countries;
3) Financing of forestry and other projects in parts of the world where the presence of large scale deforestation calls for immediate measures.

6.2. Public Policy Needs in Developing Countries — Options and Investment Decisions

The developing countries must evaluate a range of public policy options that may contribute towards the global effort in countering the greenhouse effect. Unfortunately, not enough research and analysis have been carried out on the economic costs and benefits of the options available, and actions will have to be proceeded by adequate analysis in the immediate future. Hydropower potential has not been fully utilized in the developing countries. Development and exploitation of such resources is still lagging behind because of large investment requirement for infrastructure, submergence of habitats and environmental problems associated with hydro, but also because of easier options provided by fuelwood and coal. Efforts to develop and utilize hydropower potential on ecologically sound lines should be encouraged and can be assisted by multi-lateral financing of infrastructure. The public policy needs of the developing countries are related to the following areas:

6.2.1 Involvement of local, regional and national governments in understanding the nature of the greenhouse effect and its possible impacts. In essence, actions and policy initiatives can only be mounted and sustained provided there is adequate public awareness of the whole subject area. Hence, researchers and policymakers at various levels need to interact closely in the years ahead.

6.2.2 Adjustment of energy policies and investment priorities.

With the growing capital intensity of energy supply all over the world, it is unlikely that governments would be able to support expensive energy development programmes just because they may be beneficial in reducing carbon dioxide emissions. However, there are a range
of viable options which are desirable from the development and welfare perspective, but the inertia of organizations and on-going programmes have not come fully to grips with some of these options. As newly industrializing nations add to their energy infrastructure, they have the advantage of being able to choose those technologies and follow efficient end-use strategies that minimize the risk of climate change and which promote sustainable economic development. Many of the efficiency solutions are also more cost effective than equivalent supply options. These would typically involve:

1. an increased development of renewable energy technologies which are already viable for specific applications and regions in the developing countries. It is particularly important to provide R & D programmes in this area with a goal orientation and to bridge the gap between lab results and their widespread applications. It is also important to ensure that conventional energy supply industries accept and introduce renewable energy options wherever they are economically viable.

2. regions and local communities within developing countries must develop biomass related energy plans which cover a whole range of biomass production, conversion and utilization options, which again would not only address the needs of the largest sections of society in several developing countries, but would also ensure greater absorption of CO2 through plant growth, quite apart from providing a means for arresting the degradation of large areas of land.

3. natural gas is being found on a large scale in several parts of the developing world, but decision making processes to utilize natural gas as a fuel are still tardy, partly because of large investment requirements for infrastructure, but also because of competing uses such as for fertilizers and petrochemical products. The use of natural gas as a fuel again is not only desirable from the point of view of global warming, but also because it is often the most attractive economic option in energy development. Efforts to utilize larger quantities of natural gas can be assisted by multi-lateral financing of infrastructure and greater trade in natural gas among the developing countries.

4. in the immediate future, developing countries may have no choice but to pursue larger production, distribution and use of petroleum products. This would be particularly desirable where coal is being used on a large scale and in those regions where fuelwood is the main cooking fuel. In essence, a shift from fuelwood and coal towards oil would generally be a desirable policy option.

5. energy policies need to be developed on a sound quantitative base, and developing countries may consider the use of suitable quanti-
tative models which could evaluate future policy options including environmental and CO2 implications. Policymakers would then be able to articulate energy policy on a more rigorous basis.

6.2.3 Afforestation

The rationale for extensive afforestation already exists in strong measure in most developing countries, particularly where forest area has dwindled in recent years. The problem of CO2 concentration levels only adds greater urgency to this sector. Several policy actions can be broadly identified in respect of afforestation:

1. increased outlays on afforestation are highly desirable including support from international donors and multi-lateral organizations.

2. extension programmes to promote agriforestry by farmers themselves need to be mounted on a large scale, so that forestry can be made a success story like agriculture through the participation and involvement of private sector farming which is in the hands of several billion people in the developing countries.

3. some of the larger countries in the world have to come to grips with a clear grazing policy and an overall strategy for controlling animal populations, which are often a burden on the land and impose a net cost on society. A long run strategy for improvement of cattle breeds and reduction of their population requires vigorous implementation.

4. in respect of animal grazing the whole sector of forestry, a major thrust towards community involvement is long overdue. Forestry organizations need to move afforestation programmes closer to the people to ensure their fullest participation and success of governmental efforts.

5. an intensification of science inputs, particularly in respect of biotechnology research and extension networks to improve the scientific base of forestry programmes would not only make investments in this sector attractive to farmers and private organizations, but also help to increase yields from limited land areas.

6. afforestation policies particularly in relation to peoples' participation and awareness programmes must be examined and improved. Social aspects in promoting afforestation also need deeper investigation and attention.

7. utmost efforts must be made to abate the global warming and consequent sea level rise. However, significant sea level rise may take place despite all the above measures. Vulnerable people in the coastal areas will be affected and vast areas will be inundated. People in those areas will strive to develop their coping strategies and adaptations in
their livelihood systems. Investment and support would be necessary to enable affected people to develop these coping strategies.

6.3 **Research Training and Development: Imperatives and Priorities**

6.3.1

Research and development efforts have to be tailored to achieve the twin goals of mitigating the continued increase in greenhouse gas accumulation and adaptation to its consequences.

6.3.2

For both these purposes, the dimension of ecological sustainability needs to become central to all research and development strategies and activities. For this, we need reliable tools and indices for measuring sustainability in both agricultural and industrial development. High priority should go to the standardization and application of such measurement tools. The development of mutually reinforcing packages of technologies, services, delivery systems and public policies can help to prevent the increased release of greenhouse gases.

6.3.3

There is an urgent need to improve our understanding of monsoonal rains in the tropics. In this context, the development of mathematical models for diagnostic tests is strongly recommended. Such models could be used to test model sensitivity to (a) sea surface temperature, (b) coastal upwelling, (c) the impact of afforestation on rainfall and (d) fluctuations in the earth-atmosphere radiation balance as a consequence of increasing greenhouse gases. Model performance depends critically on accurate knowledge of clouds and their distribution in space and time. For this purpose, the use of space technology, especially for preparing cloud climatology with data on outgoing long wave radiation (OLR) is recommended. Model-oriented research needs a firm data base. We recommend, as a matter of very high priority, the preparation of a comprehensive publication on all available data on rainfall. This publication could be made available to all research workers at subsidized prices.
Among the measures needed for limiting the accumulation of greenhouse gases in the atmosphere the following deserve priority attention in research and training.

1. Improving energy use efficiency.
2. Promoting the widespread use of renewable energy such as solar energy and biofuels.
3. Preventing deforestation and promoting extensive afforestation.
4. Improving water and fertilizer use efficiency.
5. Improving the monitoring mechanisms for assessing the relative role of the different greenhouse gases in raising the atmospheric temperature.
6. Intensification of research on the development of environment friendly technologies so as ultimately to eliminate the use of CFCs.

R and D efforts for adaptation to new situations in temperature, precipitation and ocean levels should include the following:

1. Population stabilization policies which will ensure that a harmonious balance can exist between the human population and the basic life support systems of land, water, flora, fauna and the atmosphere.
2. Lifestyle policies which will curb the trend for the wasteful use of energy and consumer goods and which will promote the growth of a conservation society based on the appropriate integration of traditional and frontier technologies.
3. Reproduction systems of crops appear to be relatively more sensitive to temperature rise and droughts. There is need for screening available genetic variability in crops for identifying donors of genes for tolerance to different abiotic and biotic stresses. The opportunities opened up by genetic engineering for moving genes across sexual barriers has enhanced the value of wild species in crop improvement. There is therefore urgent need for the conservation and efficient utilization of biological diversity.
4. There is need to improve models to predict and project regional effects relevant to agriculture and aquaculture.
5. Multi-disciplinary research on abiotic stresses arising from changes in temperature and water stress needs intensification, particularly in major crops like wheat, rice and maize, which determine the stability of food security systems.
6. Computer simulation models should be utilized for research on
contingency plans and alternative land use strategies to suit different weather probabilities.

(7) Research on the sources of methane build-up in the atmosphere in order to initiate appropriate remedial measures needs support; and

(8) Anticipatory research for introducing new coping mechanisms to meet the problems caused by a rise in ocean levels needs to be initiated. Such research should include attention to coastal defence and coastal adaptation techniques, aquaculture technologies and the more extensive cultivation of floating/deep water rice and other plants which have the ability to survive under such conditions.

(9) Collaborative research networks between developed and developing country institutions should be structured in a manner that relevant technologies are developed and disseminated speedily in developing countries.

6.3.6

From the foregoing, it will be obvious that the economic and ecological effects of global warming may vary from country to country. Consequently responses will have to be tailored to specific needs and situations. An inventory of well assessed traditional coping mechanisms (practices) against climatic uncertainties/extreme events (drought/flood, etc) should be prepared for different regions. This could supplement options generated through formal R & D, to meet the situations generated by potential climatic changes.

7. CONCLUSIONS

7.1

We, therefore, recommend that a National Climate Monitoring, Research and Management Board be established in countries where such an organization does not already exist, for developing and implementing in a coordinated manner research and development strategies which can help the country to adapt to emerging situations as well as to contribute to the prevention of impending catastrophes. Such a multi-disciplinary board involving all the concerned agencies of government and appropriate representatives of industry, agriculture, academia, non-governmental organizations and mass media could report to a Cabinet Committee on Sustainable Development chaired by the Chief Executive of the country. Such a Board could monitor on a continual basis
the state of the atmosphere.

7.2

Where regional organizations exist such as SAARC and ASEAN in south and southeast Asia, it would be useful to set up *Regional Climate Monitoring and Management Boards* comprising the Chairpersons of the National Boards.

7.3

Finally, we wish to emphasize that all the measures recommended by us are essential for promoting sustainable development, irrespective of the extent and type of global warming. Therefore, no further time should be lost in initiating action, although debates on the qualitative and quantitative dimensions of global warming and climate change will always continue among professionals.
DECLARATION OF THE HAGUE

THE HAGUE, NETHERLANDS

MARCH 11, 1989

The right to live is the right from which all other rights stem. Guaranteeing this right is the paramount duty of those in charge of all States throughout the world.

Today, the very conditions of life on our planet are threatened by the severe attacks to which the earth's atmosphere is subjected.

Authoritative scientific studies have shown the existence and scope of considerable dangers linked in particular to the warming of the atmosphere and to the deterioration of the ozone layer. The latter has already led to action, under the 1985 Vienna Convention for the Protection of the Ozone Layer and the 1987 Montreal Protocol, while the former is being addressed by the Intergovernmental Panel on Climatic Change established by UNEP and WMO, which has just begun its work. In addition the U.N. General Assembly adopted Resolution 43/53 on the Protection of the Global Climate in 1988, recognizing climate change as a common concern of mankind.

According to present scientific knowledge, the consequences of these phenomena may well jeopardize ecological systems as well as the most vital interests of mankind at large.

Because the problem is planet-wide in scope, solutions can only be devised on a global level. Because of the nature of the dangers involved, remedies to be sought involve not only the fundamental duty to preserve the ecosystem, but also the right to live in dignity in a viable global environment, and the consequent duty of the community of nations vis-à-vis present and future generations to do all than can be done to preserve the quality of the atmosphere.

Therefore we consider that, faced with a problem the solution to which has three salient features, namely that it is vital, urgent and global, we are in a situation that calls not only for implementation of existing principles but also for a new approach, through the development of new principles of international law including new and more effective decision-making and enforcement mechanisms.

What is needed here are regulatory, supportive and adjustment measures that take into account the participation and potential contribution of countries which have reached different levels of development. Most of the emissions that affect the atmosphere at present originate in the industrialized nations. And it is in these same nations that the room for change is greatest, and these nations are also those which have the
greatest resources to deal with this problem effectively.

The international community and especially the industrialized nations have special obligations to assist developing countries which will be very negatively affected by changes in the atmosphere although the responsibility of many of them for the process may only be marginal today.

Financial institutions and development agencies, be they international or domestic, must coordinate their activities in order to promote sustainable development.

Without prejudice to the international obligations of each State, the signatories acknowledge and will promote the following principles:

(a) The principle of developing, within the framework of the United Nations, new institutional authority, either by strengthening existing institutions or by creating a new institution, which, in the context of the preservation of the earth’s atmosphere, shall be responsible for combating any further global warming of the atmosphere and shall involve such decision-making procedures as may be effective even if, on occasion, unanimous agreement has not been achieved;

(b) The principle that this institutional authority undertake or commission the necessary studies, be granted appropriate information upon request, ensure the circulation and exchange of scientific and technological information—including facilitation of access to the technology needed, develop instruments and define standards to enhance or guarantee the protection of the atmosphere and monitor compliance herewith;

(c) The principle of appropriate measures to promote the effective implementation of and compliance with the decisions of the new institutional authority, decisions which will be subject to control by the International Court of Justice;

(d) The principle that countries to which decisions taken to protect the atmosphere shall prove to be an abnormal or special burden, in view, *inter alia*, of the level of their development and actual responsibility for the deterioration of the atmosphere, shall receive fair and equitable assistance to compensate them for bearing such burden. To this end mechanisms will have to be developed;

(e) The negotiation of the necessary legal instruments to provide an effective and coherent foundation, institutionally and financially, for the aforementioned principles.

The Heads of State and Government or their representatives, who have expressed their endorsement of this Declaration by placing their signatures under it, stress their resolve to promote the principles thus defined by:
- furthering the development of their initiative within the United Nations and in close coordination and collaboration with existing agencies set up under the auspices of the United Nations;
- inviting all States of the world and the international organizations competent in this field to join in developing, taking into account studies by the IPCC, the framework conventions and other legal instruments necessary to establish institutional authority and to implement the other principles states above to protect the atmosphere and to counter climate change, particularly global warming;
- urging all States of the world and the international organizations competent in this field to sign and ratify conventions relating to the protection of nature and the environment;
- calling upon all States of the world to endorse the present declaration.

The original of this Declaration, drawn up in French and English, will be transmitted to the Government of the Kingdom of the Netherlands, which will retain it in its archives. Each of the participating States will receive from the Government of the Kingdom of the Netherlands a true copy of this Declaration.

The Prime Minister of the Netherlands is requested to transmit the text of this Declaration, which is not eligible for registration under Article 102 of the Charter of the United Nations, to all members of the United Nations.
HELSINKI DECLARATION
ON THE PROTECTION OF THE OZONE LAYER

HELSINKI, FINLAND

MAY 2, 1989

The Governments and the European Communities represented at the first Meetings of the Parties to the Vienna Convention and the Motreal Protocol:

Aware of the wide agreement among scientists that depletion of the ozone layer will threaten present and future generations unless more stringent control measures are adopted.

Mindful that some ozone depleting substances are powerful greenhouse gases leading to global warming.

Aware also of the extensive and rapid technological development of environmentally acceptable substitutes for the substances that deplete the ozone layer and the urgent need to facilitate the transfer of technologies of such substitutes especially to developing countries.

Encourage all states that have not done so to join the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol.

Agree to phase out the production and the consumption of CFCs controlled by the Montreal Protocol as soon as possible but not later than the year 2000 and for that purpose to tighten the timetable agreed upon in the Montreal Protocol taking due account of the special situation of developing countries.

Agree to both phase out halons and control and reduce other ozone-depleting substances which contribute significantly to the ozone depletion as soon as feasible.

Agree to commit themselves, in proportion to their means and resources, to accelerate the development of environmentally acceptable substituting chemicals, products and technologies.

Agree to facilitate the access of developing countries to relevant scientific information, research results and training and to seek to develop appropriate funding mechanisms to facilitate the transfer of technology and replacement of equipment at minimum cost to developing countries.
1) We, the Heads of State or Government of seven of the European Communities, have met in Paris for the fifteenth annual Economic Summit. The Summit of the Arch initiates a new round of Summits to succeed those begun at Rambouillet in 1975 and at Versailles in 1982. The round beginning in 1982 has seen one of the longest periods of sustained growth since the Second World War. These Summits have permitted effective consultations and offered the opportunity to launch initiatives and strengthen international cooperation.

2) This year's world economic situation presents three main challenges:

The choice and the implementation of measures needed to maintain balanced and sustained growth, counter inflation, create jobs and promote social justice. These measures should also facilitate the adjustment of external imbalances, promote international trade and investment, and improve the economic situation of developing countries.

* * *

33) There is growing awareness throughout the world of the necessity to preserve better the global ecological balance. This includes serious threats to the atmosphere, which could lead to future climate changes. We note with great concern the growing pollution of air, lakes, rivers, oceans and seas; acid rain, dangerous substances; and the rapid desertification and deforestation. Such environmental degradation endangers species and undermines the well-being of individuals and societies.

Decisive action is urgently needed to understand and protect the earth's ecological balance. We will work together to achieve the common goals of preserving a healthy and balanced global environment in order to meet shared economic and social objectives and to carry out...
obligations to future generations.

34) We urge all countries to give further impetus to scientific re-
search on environmental issues, to develop necessary technologies and
to make clear evaluations of the economic costs and benefits of environ-
mental policies.

The persisting uncertainty on some of these issues should not unduly
delay our action.

In this connection, we ask all countries to combine their efforts in
order to improve observation and monitoring on a global scale.

35) We believe that international cooperation also needs to be en-
hanced in the field of technology and technology transfer in order to
reduce pollution or provide alternative solutions.

36) We believe that industry has a crucial role in preventing pollu-
tion at source, in waste minimization, in energy conservation, and in
the design and marketing of cost-effective clean technologies. The agri-
cultural sector must also contribute to tackling problems such as water
pollution, soil erosion and desertification.

37) Environmental protection is integral to issues such as trade, de-
velopment, energy, transport, agriculture and economic planning. There-
fore, environmental considerations must be taken into account in
economic decision-making. In fact good economic policies and good en-
vironmental policies are mutually reinforcing.

In order to achieve sustainable development, we shall ensure the
compatibility of economic growth and development with the protection
of the environment. Environmental protection and related investment
should contribute to economic growth. In this respect, intensified efforts
for technological breakthrough are important to reconcile economic
growth and environmental policies.

Clear assessments of the costs, benefits and resource implications of
environmental protection should help governments to take the neces-
sary decisions on the mix of price signals (e.g., taxes or expenditures)
and regulatory actions, reflecting where possible the full value of natu-
ral resources.

We encourage the World Bank and regional development banks to
integrate environmental consideration into their activities. International
organizations such as the OECD and the United Nations and its affili-
ated organizations, will be asked to develop further techniques of anal-
ysis which would help governments assess appropriate economic mea-
sures to promote the quality of the environment. We ask the OECD, within the context of its work on integrating environment and economic decision-making, to examine how selected environmental indicators could be developed. We expect the 1992 UN Conference on Environment and Development to give additional momentum to the protection of the global environment.

38) To help developing countries deal with the past damage and to encourage them to take environmentally desirable action, economic incentives may include the use of aid mechanisms and specific transfer of technology. In special cases, ODA debt forgiveness and debt for nature swaps can play a useful role in environmental protection.

We also emphasize the necessity to take into account the interests and needs of developing countries in sustaining the growth of their economies and the financial and technological requirements to meet environmental challenges.

39) The depletion of the stratospheric ozone layer is alarming and calls for prompt action.

We welcome the HELSINKI conclusions related, among other issues, to the complete abandonment of the production and consumption of chloro-fluorocarbons covered by the MONTREAL Protocol as soon as possible and not later than the end of the century. Specific attention must also be given to those ozone-depleting substances not covered by the Montreal Protocol. We shall promote the development and use of suitable substitute substances and technologies. More emphasis should be placed on projects that provide alternatives to chloro-fluorocarbons.

40) We strongly advocate common efforts to limit emissions of carbon dioxide and other greenhouse gases, which threaten to induce climate change, endangering the environment and ultimately the economy. We strongly support the work undertaken by the Intergovernmental Panel on Climate Change, on this issue.

We need to strengthen the worldwide network of observatories for greenhouse gases and support the World Meteorological Organization initiative to establish a global climatological reference network to detect climate changes.

41) We agree that increasing energy efficiency could make a substantial contribution to these goals. We urge international organizations concerned to encourage measures, including economic measures, to improve energy conservation and, more broadly, efficiency in the use
of energy of all kinds and to promote relevant techniques and technologies.

We are committed to maintaining the highest safety standards for nuclear power plants and to strengthening international cooperation in safe operation of power plants and waste management, and we recognize that nuclear power also plays an important role in limiting output of greenhouse gases.

42) Deforestation also damages the atmosphere and must be reversed. We call for the adoption of sustainable forest management practices, with a view to preserving the scale of world forests. The relevant international organizations will be asked to complete reports on the state of the world’s forests by 1990.

43) Preserving the tropical forests is an urgent need for the world as a whole. While recognizing the sovereign rights of developing countries to make use of their natural resources, we encourage, through a sustainable use of tropical forests, the protection of all the species therein and the traditional rights to land and other resources of local communities. We welcome the German initiative in this field as a basis for progress.

To this end, we give strong support to rapid implementation of the Tropical Forest Action Plan which was adopted in 1986 in the framework of the Food and Agricultural Organization. We appeal to both consumer and producer countries, which are united in the International Tropical Timber Organization, to join their efforts to ensure better conservation of the forests. We express our readiness to assist the efforts of nations with tropical forests through financial and technical cooperation, and in international organizations.

44) Temperate forests, lakes and rivers must be protected against the effects of acid pollutants such as sulphur dioxide and nitrogen oxides. It is necessary to pursue actively the bilateral and multilateral efforts to this end.

45) The increasing complexity of the issues related to the protection of the atmosphere calls for innovative solutions. New instruments may be contemplated. We believe that the conclusion of a framework or umbrella convention on climate change to set out general principles or guidelines is urgently required to mobilize and rationalize the efforts made by the international community. We welcome the work under way by the United Nations Environment Program, in cooperation with
the World Meteorological Organization, drawing on the work of the Intergovernmental Panel on Climate Change and the results of other international meetings. Specific protocols containing concrete commitments could be fitted into the framework as scientific evidence requires and permits.

46) We condemn indiscriminate use of oceans as dumping grounds for polluting waste. There is a particular problem with the deterioration of coastal waters. To ensure the sustainable management of the marine environment, we recognize the importance of international cooperation in preserving it and conserving the living resources of the sea. We call for relevant bodies of the United Nations to prepare a report on the state of the world's oceans.

We express our concern that national, regional and global capabilities to contain and alleviate the consequences of the maritime oil spills be improved. We urge all countries to make better use of the latest monitoring and clean-up technologies. We ask all countries to adhere to and implement fully the international conventions for the prevention of oil pollution of the oceans. We also ask the International Maritime Organization to put forward proposals for further preventive action.

47) We are committed to ensuring full implementation of existing rules for the environment. In this respect, we note with interest the initiative of the Italian government to host in 1990 a forum on international law for the environment with scholars, scientific experts and officials, to consider the need for a digest of existing rules and to give in-depth consideration to the legal aspects of environment at the international level.

48) We advocate that existing environmental institutions be strengthened within the United Nations system. In particular, the United Nations Environment Program urgently requires strengthening and increased financial support. Some of us have agreed that the establishment within the United Nations of a new institution may also be worth considering.

49) We have taken note of the report of the sixth conference on bioethics held in Brussels which examined the elaboration of a universal code of environmental ethics based upon the concept of the "human stewardship of nature."

50) It is a matter of international concern that Bangladesh, one of
the poorest and most densely populated countries in the world, is periodically devastated by catastrophic floods.

We stress the urgent need for effective, coordinated action by the international community, in support of the Government of Bangladesh, in order to find solutions to this major problem which are technically, financially, economically and environmentally sound. In that spirit, and taking account of help already given, we take note of the different studies concerning flood alleviation, initiated by France, Japan, the U.S. and the United Nations Development program, which have been reviewed by experts from all our countries. We welcome the World Bank's agreement, following those studies to coordinate the efforts of the international community so that a sound basis for achieving a real improvement in alleviating the effects of flood can be established. We also welcome the agreement of the World Bank to chair, by the end of the year, a meeting to be held in the United Kingdom by invitation of the Bangladesh Government, of the countries willing to take an active part in such a program.

51) We give political support to projects such as the joint project to set up an observatory at of the Saharan areas, which answers the need to monitor the development of that rapidly deteriorating, fragile, arid region, in order to protect it more effectively.
The Tokyo Conference held on 11th through 13th September, 1989, addressed two major areas of global concern: "Changing Atmosphere" and "Development and the Environment in Developing Countries" so as to seek pragmatic responses of the world to help realize the concept of "environmentally sound and sustainable development" as advocated by the UNEP Governing Council and the World Commission on Environment and Development. The Conference was held at the height of growing world-wide attention to global environmental issues. Such growing attention has been indeed clearly demonstrated in recent international meetings such as the Arch Summit, and thus the Conference paid due consideration to the results of those meetings.

(1) Rapid and unfettered economic growth fueled by vast quantities of fossil fuel in the developed countries, and widespread environmental damage stimulated by abject poverty and high population growth in many developing countries have caused worrisome increases in atmospheric concentrations of carbon dioxide and other greenhouse gases. As a consequence, Planet Earth confronts the prospect of significant warming and shifts in precipitation patterns. During the coming decades, everyone, everywhere, will begin to experience these major historical shifts in climate — effects that will be manifest in agricultural production, sea levels, human health and quality of life, generally.

The threat of global climate change with its accompanying biological, economic and social disruptions will make the goal of sustainable development even more difficult and elusive for nations across the globe. During the decades to come, virtually every aspect of human life will change perceptively — how we grow our food, even what food we grow, the nature of our fuel, the supply of water for irrigation and human consumption, the pattern of daily life. Of all the environmental challenges mankind has confronted in the course of history, none has been as world-wide as the challenge of green house warming. No one nation can, alone, mitigate the extent or consequences. It is a truly global problem; it will require a truly global solution.

(2) The forests of the tropical countries of the world are a vital re-
source. They provide a wealth of goods and services. They yield timber, fuelwood and many other economic forest products; they maintain the stability and fertility of the soil; and they regulate water supplies and moderate climate. They also contain a substantial bank of stored carbon and are a highly important reservoir of biological diversity.

Natural forests within the tropics are being destroyed and seriously degraded every year at an unprecedented rate, the principal causes being pressure of population, economic imperatives and land hunger. Only a small proportion of this forest is removed for well planned and executed developments by the majority is the victim of unwise conversion to agriculture, excessive shifting cultivation, badly executed timber exploitation, over-grazing and over-collection of fuelwood, many of these factors being closely linked to each other. In general the real goods and services which could be provided by the forests are undervalued and the benefits of conversion to other uses are overestimated.

There is a reciprocal relation between deforestation and global warming. On one hand, deforestation contributes to the build-up of CO2 in the atmosphere; on the other hand, global warming will have an effect on forest productivity, the choice of species for afforestation, the choice and management of biological reserves and many other features.

(3) In developing countries the problem of mass poverty is the critical issue to be addressed in their quest for sustainable development. In the course of rapid industrialization and urbanization, many developing countries are faced with environmental pollution problems, but it is difficult for them to implement necessary pollution control measures due to institutional deficiencies and to lack of human, financial and technological resources.

The Tokyo Conference grappled with the challenges through the course of intensive, constructive discussions, with a firm conviction that such challenges should and could be overcome by keeping the present momentum coupled with appropriate actions to be taken, domestic or international, which led to the following recommendations. They should be incorporated in international efforts toward the 1992 UN Conference on Environment and Development.

I. OVERALL FINDINGS

Since there are many kinds of uncertainties surrounding global environmental problems, internationally coordinated efforts should be expanded in continuous global monitoring of the earth’s environment, in
review and assessment of the data acquired, and in interdisciplinary scientific research and studies.

Greater efforts should be made to foster better linkage between science and policy so that policies will be based on solid scientific grounds. In this respect, the essential advisory role of scientists in the decision-making process should be recognized.

In parallel with gathering scientific knowledge on global environmental problems to reduce uncertainties, necessary and appropriate steps should be immediately taken to avert the risks for present and future generations.

Designing for a sustainable future beyond the 20th century will require a new commitment to the Environmental Ethics by all nations, upon which actions can be taken by integrating a variety of socio-economic policies, enabling people in developing countries to meet their basic needs, and modifying socio-economic activities including the lifestyle in developed countries. Broad-based participation and contributions of concerned groups and the public are needed and intensive public information and awareness activities should be fostered.

Over-population and poverty pose great threats to environment, and as such these problems demand urgent attention for their solution for making sustainable development achievable.

Further international cooperation between and among groups of nations is of vital importance in global environmental management.

II. INTERSECTORAL RECOMMENDATIONS

A. Reducing Uncertainties

All countries should take strong initiatives to increase scientific knowledge about global environmental issues. It is essential that uncertainties regarding climate change, ozone layer depletion and other environmental problems be reduced.

Special efforts are required to provide the developing countries with assistance to ensure their participation in, and their access to, the results of these initiatives:

(a) All countries should actively maintain and, where necessary, augment global monitoring networks using ground and ocean stations, ocean-going ships, airplanes or satellites. Satellite observation programmes should be coordinated among countries so as to make systemic observations.

The data acquired by global monitoring should be accumulated, in
an appropriate way, in data centers in several countries or international organizations. The data should be exchanged among those centers and made freely accessible to all researchers concerned.

(b) Scientific research on the global environment should be supported in all countries. International coordination of research programmes, aimed at a long-term global perspective, will aid in maximizing the efficiency of such research including the various disciplines of social science. In this connection, existing international research programmes such as the International Geosphere-Biosphere Programme (IGBP), the World Climate Programme (WCP) and the International Human Dimensions of Global Change Programme (IHDC) should be effectively promoted.

To encourage these research programmes, global environmental research centers in developed countries, equipped with advanced research facilities, should promote international exchanges of researchers and research results.

(c) Training of specialists, in particular in developing countries, and general environmental education should be given high priority.

(d) To review and promote scientific progress, international meetings of leading scientists from various disciplines should be encouraged.

B. Technology

The challenge of achieving sustainable development in the face of global concerns such as greenhouse warming poses the need for unprecedented technological advances in a wide array of fields including energy, bio-technology and agriculture. But technological approaches to the climate change issue should also recognize the complex nature of global environmental issues and should be sensitive to the danger that a "technological fix" for one problem may magnify the difficulties associated with others.

In this respect, any technological breakthrough should fuse and harmonize the expansion of human activities with the grand cycles of nature, aiming at removal and re-utilization of environmentally burdensome substances, and the creation of environmentally benign materials and production processes. At the same time, increased utilization of existing and, where relevant, indigenous technologies should be promoted.

Institutional arrangements should be urgently initiated with a view to exploring international policy orientations for research and develop-
ment. International cooperation in the field of technology, including technology transfer to developing countries, is also important.

C. Financial Arrangements

The Conference noted with concern the fact that, in the face of growing threats to the earth's environment, the past decade has seen a decline in the overall financial flow to developing countries, and a rise in their debt burden.

The imperatives of sustainable development require nothing less than a critical review of internal economic, and fiscal and financial policies of each individual country as well as the existing structure of international economy such as trade, direct investment, international financing and official development assistance.

A dramatic addition and innovative new approaches to international funding will be required to achieve environmentally sound and sustainable development. In this regard, the Tokyo Conference appreciated the initiatives taken in various international fora such as the Working Group of the Parties to the Montreal Protocol, the Intergovernmental Panel on Climate Change (IPCC), the Ministerial Conference in the Netherlands to be held in November, 1989, and the International Conservation Financing Project commissioned by the UNDP.

One such innovative approach would be the transformation of debt obligations to support environmental programmes, through mechanisms similar to "debt-for-nature swaps."

The Conference valued the role which has been played by the World Bank and other multi-lateral development banks in their efforts to eliminate the vicious circle of poverty and environmental degradation.

The announcement by the Government of Japan to provide 300 billion yen (about $2.25 billion) of official development assistance for environmental purposes in the next three years was highly commended.

D. Institutional Responses

International cooperation as recommended here requires strengthened implementation mechanisms to facilitate and coordinate various measures to be carried out by national, regional and international organizations. UNEP, WMO and other international bodies should be further strengthened so as to expand their financial and institutional capacity in order to serve this purpose.
III. CHANGING ATMOSPHERE

The emission of radioactively and chemically active gases from industrial sources and from current land use practices is a major cause of concern. The accumulation of those gases in the atmosphere is depleting the ozone layer and may be altering the global climate, with possible consequential risks to people and the environment including health risks from increased ultraviolet radiation; heat stress from rising temperatures; damage to plants, animals in the ecosystems; loss of land and settlements to rising seas; flood or drought risk form changing precipitation patterns and other major disruptions of the social and economic well-being of many of the earth's inhabitants.

In view of the above,

(a) As many countries as possible should be encouraged to participate in the activities of the IPCC. All countries are urged to support research, monitoring, assessment and impact study programmes, and to engage in the identification of national response options and roles in global response to limit or delay climate change and adapt to unavoidable impacts of climate change.

The IPCC should be encouraged to investigate the feasibility of low-emission scenarios which sustain the prospects for economic growth by limiting global warming to less than the "doubled CO2-equivalent" effect.

(b) There is still considerable uncertainty on the magnitude, timing and regional variations of climate change and their impacts on the hydrological cycle and the level of the sea. The role of clouds and oceans are particularly central. It is also necessary to monitor sea level rise, so as to undertake anticipatory research to mitigate the effects due to any such rise. In order to reduce the uncertainty, all countries are urged to support and participate in research studies coordinated by the IGBP, WCP, and UNESCO's programmes in ecology, hydrology and oceanography. It should also be emphasized that fully-integrated climate system models are essential and provide an effective method to predict the future evolution of climate.

(c) Intensified efforts should be made for increased use of existing technologies and for achievement of technological breakthroughs in such areas as the prevention and reduction of greenhouse gas emissions, including energy saving, new and renewable energy, and removal and re-utilization of CO2, and adaptation to climate change,
(d) Consideration of technical and legal aspects of a framework convention on climatic change should be urgently initiated so as to realize the earliest adoption of the convention and, when scientific evidence requires and permits, the conclusion of its relevant protocols.

(e) Countries should urgently accede to the Montreal Protocol on Substances that Deplete the Ozone Layer, if they have not yet done so. They should also participate in the consideration of amendments to the Protocol to phase-out, by the year 2000 or as soon as possible thereafter, the production and consumption of substances already controlled by the Protocol, and control or reduce, as much as possible, other ozone depleting substances.

(f) Countries should also take a combination of urgent steps to address the greenhouse problem such as increasing energy efficiency and use of non-fossil energy. This includes renewable energy and, where national decisions so contemplate, nuclear power with maintained and improved safety in construction, operation and waste disposal.

(g) International cooperation should be enhanced to help developing countries institute national policies for adapting to the changing atmosphere and for limiting or reducing the emission of substances contributing to acid precipitation, the greenhouse effect or to the depletion of the ozone layer, and

(h) Increased assistance to developing countries should be provided so as to ensure; (i) their participation in the IPCC and its working groups, and other international fora on the Vienna Convention and the Montreal Protocol,

(ii) adequate training of scientists and administrators,

(iii) mounting public education and awareness programmes,

(iv) the swift transfer of technologies and information so as to control pollution sources without detriment to developmental requirements,

(v) the implementation of measures to mitigate global warming such as afforestation,

(vi) effective analysis of regional impacts of atmospheric changes and the preparation of national and regional responses, and

(vii) observation of their own climatic and environmental factors which will contribute both to national policies and to global assessments.
IV. TROPICAL FORESTS AND THEIR FUTURE

A. Action by Developing Countries

Forest resources can only be developed wisely within the framework of national and international policies that recognize and profit from the full value of these goods and services.

The following actions are recommended to the attention of national Governments:

(a) A long-term strategy for the conservation and utilization of tropical forests should be fully integrated into the overall development plan of each country, taking account of the renewability of forests, and conservation of ecosystems and biological diversity. Governments should establish units for policy analysis.

(b) Requirements of local communities should be the first charge on the forest, and the participation of local populations in forestry development should be promoted, based upon both timber and non-timber products. Policies should be encouraged for productive multi-purpose forests in the custody of communities of forest dwellers.

(c) Alternatives to excessive shifting cultivation should be found which create employment and income, such as wider and more diversified use of agroforestry systems and practices.

(d) A network of carefully chosen national parks, sanctuaries and biosphere reserves for the conservation of biological diversity should be established. These should be of sufficient size and internal variability to ensure the survival of large animals and to be buffered against climatic change.

(e) Successful demonstration programmes in biological conservation and sustainable development should be identified and every effort should be made to provide practical examples of the income that can be derived from natural forests, for example, as a base for specialist tourism.

(f) Effective priority should be given to large-scale sustainable management of natural forests for timber production according to scientific management plans with logging under adequate control.

(g) The stumpage value of commercial timber species should be increased, and the financial and fiscal environment should be modified to provide suitable conditions for sustainable forest management.
(h) A massive programme of reforestation is required concentrating on lands which have been deforested or degraded, and, at least in the humid tropics, based less than at present on mono-specific plantations.

(i) Professional education, training and research in forestry and land-use should be broadened and strengthened, and great emphasis should be placed on the development of human resources.

(j) Special attention needs to be paid to the problems of conservation and sustainable utilization of mangrove areas for multiple uses and to the research needed as a sound basis for their management. All bodies concerned with the management of coastal resources should be involved. ITTO is urged to expand its activities to embrace mangroves.

B. Action by Developed Countries

(a) Financial measures and investment: The financial burden on developing countries is a powerful incentive to mine their forests. Resources should be directed toward relieving this burden by encouraging profitable enterprises which are consistent with the sustainable utilization and conservation of tropical forests.

(b) Trade policies: Developed countries should favor policies which stabilize the markets for cash crops which replace tropical forest (e.g., rubber, oil palm, sugar) and should discourage import duties that hinder the benefits of adding value to timber products from sustainably managed forests. Measures should be encouraged to reduce agricultural subsidies which militate against production in tropical countries and consideration should be given to planting trees on surplus farm land as a contribution to reducing atmospheric CO2.

(c) Aid: Aid should be directed to strengthening self-reliance and to measures which favor good land allocation and the sustainable use of forest lands. Substantially increased financial support should be provided by the whole donor community, particularly for the ITTO, whose objective is sustainable development of tropical forest with emphasis on trade, ecological balance and conservation, the Tropical Forest Action Plan (TFAP) and the new forestry initiative within the Consultative Group on International Agricultural Research (CGIAR).

C. International Action

There are already many international programmes in relation to
tropical forestry. These should be strengthened and, in each of them, closer ties should be developed between forestry and other aspects of government policies which affect the land.

(a) The work undertaken through the TFAP should be strongly supported. The TFAP should pay particular attention to the following: dialogue at policy and planning level; intersectoral linkages; involving NGOs, local communities and their representative organizations, as well as the private sector; the balance between investment and technical assistance; ensuring sustained support and follow-up locally and by the international community; regional and subregional action; the mobilization of manpower and financial resources by national governments. International resources should supplement and complement national efforts.

(b) Accurate information on the exact condition of the tropical forest is essential to ensure its future. The work of UNEP, the FAO assessment for the year 1990 and the work of the Conservation Monitoring Center of IUCN are vital elements. Support should be given to develop and strengthen the various research programmes and institutes involved: the IGBP, the forestry related activities of CGIAR and the relevant programmes of ICSU and the International Union of Forestry Researchers' Organizations (IUFRO).

(c) As fixing carbon in wood or humus is the only known practicable way of removing large quantities of CO2 from atmospheric circulation, it is recommended that the international community should explicitly aim to increase the area under forest world-wide.

(d) Existing centers of excellence (herbaria, natural history collections, etc.) urgently need increased funds to provide the basis upon which all forest work relies. The training of ecologists and taxonomists from tropical countries is an urgent need.

(e) An international data base on tropical forests and forestry should be established.

V. DEVELOPMENT AND ENVIRONMENTAL POLLUTION IN DEVELOPING COUNTRIES

A. Developing Countries' Environmental Protection Measures

Developing countries should be encouraged to take measures as promptly as possible including;
(a) integrating environmental considerations in development policies and establishing and enforcing environmental regulations,

(b) promoting integrating use of various policy tools, such as fiscal policy, industrial sitting and land use planning for environmental management,

(c) implementing monitoring and assessment of environmental quality, and periodic reporting of the results, and strengthening capabilities for environmental appraisal monitoring of development programmes and projects,

(d) improving institutional arrangements in governmental administration to promote integrated policies for sustainable development,

(e) strengthening institutional capabilities for research and development for environmental management in industry and agriculture, with reference to local conditions and resource endowment, and strengthening training programmes of personnel for environmental management,

(f) encouraging public participation in, and support of, environmental management activities through the provision of environmental data and information and through promoting public awareness programmes, and

(g) promoting regional cooperative programmes for environmental management among countries which share similar geographical or socio-economic backgrounds.

B. Response by Developed Countries

Developed countries should take steps;

(a) to promote development assistance in an appropriate manner,
   (i) for social infrastructure which can efficiently utilize available local resources,
   (ii) for environmental monitoring systems and information processing,
   (iii) for expanding institutional and manpower potential in developing countries, for example, by assisting the establishment of environmental research and training institutions which increase the capability of environmental monitoring, research and training in developing countries, or by dispatching environmental experts,
   (iv) for introduction and research and development of appropriate technology,
   (v) for supporting the formulation of environmental projects based on the needs of the developing countries concerned
through policy dialogues between donor and recipient countries, and
(vi) for promoting environmental cooperative activities at the re-
gional level.
(b) to initiate consideration of institutional frameworks for increased
transfer of technology for environmental pollution control,
(c) to assist developing countries to ensure integration of environmental
considerations into development aid projects and their implementation,
(d) to allocate greater resources to projects in harmony with the local
economy and contributing to environmental conservation.
(e) to strengthen the Committee on International Development Institu-
tions on the Environment (CIDIE), and to help it ensure cooperation
with and among bilateral aid agencies, and
(f) to ensure adequate environmental consideration in industrial and
commercial undertakings, in both private and public sectors.

C. Industry/Business and Environmental Conservation

(a) Industries should be guided in their trade and investment practices;
(i) to take account of environmental effects of their activities,
(ii) to ensure timely provision of proper risk
information to trading partners for their
informed decision-making,
(iii) to assist trading partners in establishing and building up capaci-
ties risk management for imported goods,
(iv) to pay due attention to environmentally
harmful export practices.
(b) Private industries should be encouraged through economic and other
incentives;
(i) to take investment by the private sector in environmental im-
provement, such as the
improvement of energy efficiency and pollution control equipment
and the introduction of non-fossil energy,
(ii) to engage in research and development for environmentally
sound and sustainable development, and
(iii) to develop funding mechanism for converting commercial bank
loans into sustainable development activities.
1. We, the Heads of Government of the Commonwealth, representing a quarter of the world’s population and a broad cross-section of global interests, are deeply concerned at the serious deterioration in the environment and the threat this poses to the well-being of present and future generations. Any delay in taking action to halt this progressive deterioration will result in permanent and irreversible damage.

2. The current threat to the environment, which is a common concern of all mankind, stems essentially from past neglect in managing the natural environment and resources. The environment has been degraded by decades of industrial and other forms of pollution, including unsafe disposal of toxic wastes, the burning of fossil fuels, nuclear testing and non-sustainable practices in agriculture, fishery and forestry.

3. The main environmental problems facing the world are the ‘greenhouse effect’ (which may lead to severe climatic changes that could induce floods, droughts and rising sea levels), the depletion of the ozone layer, acid rain, marine pollution, land degradation and the extinction of numerous animal and plant species. Some developing countries also face distinct environmental problems arising from poverty and population pressure. In addition, some islands and low-lying areas of other countries are threatened by the prospect of rising sea level.

4. Many environmental problems transcend national boundaries and interests, necessitating a co-ordinated national jurisdiction, and where there is transboundary pollution on land and in the oceans, atmosphere and outer space.

5. The need to protect the environment should be viewed in a balanced perspective and due emphasis be accorded to promoting economic growth and sustainable development, including eradication of poverty, meeting basic needs, and enhancing the quality of life. The responsibility for ensuring a better environment should be equitably shared and the ability of developing countries to respond be taken into account.
6. To achieve sustainable development, economic growth is a compelling necessity. Sustainable development implies the incorporation of environmental concerns into economic planning and policies. Environmental concerns should not be used to introduce a new form of conditionality in aid and development financing, nor as a pretext for creating unjustified barriers to trade.

7. The success of global and national environmental programmes requires mutually reinforcing strategies and the participation and commitment of all levels of society—government, individuals and organizations, industry and the scientific community.

8. Recognizing that our shared environment binds all countries to a common future, we, the Heads of Government of the Commonwealth, resolved to act collectively and individually, commit ourselves to the following programme of action:

- advance policies and programmes which help achieve sustainable development, including the development of new and better techniques in integrating the environmental dimension in economic decision-making;

- strengthen and support the development of international funding mechanisms and appropriate decision-making procedures to respond to environmental protection needs which will include assisting developing countries to obtain access to and transfer of needed environmental technologies and which should take account of proposals for an international environment fund/Planet Protection Fund;

- support the work of the UNEP/WMO Inter-governmental Panel on Climate Change (IPCC);

- call for the early conclusion of an international convention to protect and conserve the global climate and, in this context, applaud the efforts of member governments to advance the negotiation of a framework convention under UN auspices;

- support the findings and recommendations of the Commonwealth Expert Group's Report on Climate Change as a basis for achievable action to develop strategies for adapting to climate change and for reducing greenhouse gas emissions, as well as making an important contribution to the work of the IPCC;

- support measures to improve energy conservation and energy efficiency;

- promote the reduction and eventual phase-out of substances depleting the ozone layer;

- promote afforestation and agricultural practices in developed and
developing countries to arrest the increase in atmospheric carbon dioxide and halt the deterioration of land and water resources;
- strengthen efforts by developing countries in sustainable forest management and their manufacture and export of higher value-added forest products and, in this regard, support the activities of the International Tropical Timber Organization and the Food and Agriculture Organization's Tropical Forestry Action Plan, as well as take note of the recommendations of the 13th Commonwealth Forestry Conference;
- support activities related to the conservation of biological diversity and genetic resources, including the conservation of significant areas of virgin forest and other protected natural habitats;
- support low-lying and island countries in their efforts to protect themselves and their vulnerable natural marine ecosystems from the effects of sea level rise;
- discourage and restrict non-sustainable fishing practices and seek to ban tangle net and pelagic drift net fishing;
- support efforts to prevent marine pollution including curbing ocean dumping of toxic wastes;
- strengthen international action to ensure the safe management and disposal of hazardous wastes and to reduce transboundary movements, particularly to prevent dumping in developing countries;
- participate in relevant international agreements relating to the environment and promote new and innovative instruments which will attract widespread support for protecting the global environment; and
- strengthen national, regional and international institutions responsible for environmental protection as well as the promotion of active programmes on environmental education to heighten public awareness and support.

9. We, the Heads of Government of the Commonwealth, resolve to take immediate and positive actions on the basis of the above programme. In this regard, we pledge our full support for the convening of the 1992 UN conference on Environment and Development.

10. We call on the international community to join us in this endeavor. Issued by Commonwealth Heads of Government at Langkawi, Malaysia.
(1) The composition of the earth’s atmosphere is being seriously altered at an unprecedented rate due to human activity. Based on our current understanding, society is being threatened by man-made changes to the global climate.

(2) While there are still uncertainties regarding the magnitude, timing and regional effects of climate change due to human activity, there is a growing consensus in the scientific community that significant climate change and instability are most likely over the next century. Predictions available today indicate potentially severe economic and social dislocations for future generations. Assuming these predictions, delay in action may endanger the future of the planet as we know it.

(3) Fortunately, there is a growing awareness among the world population and their political leaders that action is needed. The basic principle of ecologically sustainable development has gained wide currency following the report of the World Commission on Environment and Development. This principle should be fundamental to efforts to tackle the problem of climate change and atmospheric pollution. The protection of the ozone layer is being addressed by the 1985 Vienna Convention on the Protection of the Ozone Layer and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. Further strengthening of control measures contained in the Protocol was called for at the London Conference on Saving the Ozone Layer in March 1989 and the first meeting of the parties to the Montreal Protocol at Helsinki in May 1989. A decision will be taken by the second meeting of the contracting parties to be held in London in 1990. The process aims at phasing out the production and consumption of chlorofluorocarbons (CFCs) controlled under the Montreal Protocol by the year 2000 by the developed countries. They should also phase out other controlled substances which deplete the ozone layer as soon as feasible. Developing countries should also phase out these substances as soon as possible after their technology and resource needs are met.
(4) Global warming is being addressed by the Intergovernmental Panel on Climate Change (IPCC), which was established by UNEP and WMO, and recognized by UN General Assembly Resolution 42/53 on Protection of global climate for present and future generations of mankind. The Hague Declaration of March 1989 put forward challenging ideas for international co-operation, and legal and institutional measures. The 15th session of the UNEP Governing Council and the XLI session of the WMO Executive Council in 1989 requested their executive heads to begin preparations for negotiations on a framework convention on climate: these negotiations should be initiated as soon as possible after the interim report of the IPCC is adopted. This interim report will be reviewed at the Second World Climate Conference in November 1990. The 1989 Economic Summit agreed that a framework convention on climate change setting out general principles was urgently required and that specific protocols containing concrete commitments could be fitted into the framework as scientific evidence requires and permits. The Economic Summit also strongly advocated common efforts to limit emissions of carbon dioxide and other greenhouse gases. The July 1988 declaration of the states, parties to the Warsaw Treaty, and the meeting of non-aligned countries in Belgrade in September 1989 also addressed the issue of climate change. The Tokyo Conference on Global Environment and Human Response Toward Sustainable Development was held in September, 1989. The Langkawi Declaration on Environment issued by the Commonwealth Heads of Governments in October 1989 stated the need to take new action to address the serious deterioration in the environment, including climate change. Given this base it is now time for governments of all countries to commit themselves to the IPCC, to strengthen and to extend the process of addressing climate change.

(5) Measures to limit climate change will have other significant benefits such as reducing acidification, protecting the ozone layer, preserving biodiversity and other natural resources, preventing mean sea-level change and promoting sustainable development.

(6) The Conference recognizes the principle of the sovereign right of States to manage their natural resources independently. The Conference also reaffirms that global environmental problems have to be approached through international co-operation. Solving the external debt problem of developing countries, and establishing fair economic and commercial relationships between industrialized and developing countries would assist developing countries in creating appropriate condi-
tions to protect the environment.

(7) Climate change is a common concern of mankind. All countries should now, according to their capabilities and the means at their disposal, initiate actions and develop and maintain effective and operational strategies to control, limit or reduce emissions of greenhouse gas concentrations, and in view of their capabilities, have specific responsibilities of different kinds: i) they should set an example by initiating domestic action, ii) they should support, financially and otherwise, the action by countries to which the protection of the atmosphere and adjustment to climate change would prove to be an excessive burden and iii) they should reduce emissions of greenhouse gases, also taking into account the need of the developing countries to have sustainable development. Developing countries establishing industrial facilities for the first time have a unique opportunity to include up-to-date technologies for controlling the emissions of greenhouse gases.

(8) For the long term safeguarding of our planet and maintaining its ecological balance, joint effort and action should aim at limiting or reducing emissions and increasing sinks for greenhouse gases to a level consistent with the natural capacity of the planet. Such a level should be reached within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and permit economic activity to develop in a sustainable and environmentally sound manner. Stabilizing the atmospheric concentrations for greenhouse gases is an imperative goal. The IPCC will need to report on the best scientific knowledge as to the options for containing climate change within tolerable limits. Some currently available estimates indicate that this could require a reduction of global anthropogenic greenhouse gas emissions by more than 50 per cent. These estimates should be the subject of further examination by the IPCC.

(9) While striving to preserve the global environment, it is important to work at the same time to ensure stable development of the world economy, in line with the concept of "sustainable development". Effort and action should include: i) the phasing-out of CFCs controlled by the Montreal Protocol, which are responsible for about one fifth of projected global warming, by national action and international co-operation in the context of the Montreal Protocol. This includes financial assistance and transfer of technology and information. In this connection, it is important that the substitutes for CFCs also should not contribute significantly to the global warming problem, ii) action especially
by industrialized countries to limit or reduce CO2 emissions, iii) action
to reduce deforestation, prevent soil erosion and desertification; increase
afforestation, and sound forest management in the temperate as well as
the tropical zones, iv) action to limit or reduce the emissions of all
greenhouse gases other than CO2 and their precursors and to increase
the sinks for such substances and v) intensified efforts for technological
breakthroughs, for example with regards to renewable energy and re-
moval and re-utilization of CO2.

(10) The conference recommends that appropriate fora, including the
IPCC, consider the necessity and efficiency of the introduction of the
concept of CO2-equivalence. This would provide a single parameter to
describe the radiative effects of the various greenhouse gases, including
CFCs. Such a concept, after taking into account other environmental
considerations, creates a basis for negotiations in response measures for
different greenhouse gases in the most cost-effective manner. The Con-
ference further recommends the development of common definitions
and the harmonization of methods to calculate CO2-emissions.

(11) All countries should increase co-operation in developing new, envi-
ronmentally sound technologies, to improve existing technologies and
increasingly to use these technologies in order to limit climate change
or adapt to it. Maximum use should be made of existing international
organizations, institutions and mechanisms, governmental and non-gov-
ernmental, for technology co-operation with and transfer to interested
countries, especially developing countries. Factors that impede effective
transfer of appropriate technologies should be identified and measures
implemented to overcome these impediments.

(12) Progress in reducing atmospheric pollution depends not only on
technical and economic issues but also on attitudinal and conceptual
changes. All countries, especially industrialized countries, should recog-
nize the need to make their socio-economic activities and life-styles en-
vironmentally sound. Improved dissemination of information and better
training of personnel is needed, both at the national and international
level. Public awareness programmes, including school curricula, should
include the issue of climate change and its connection with the way
individuals use energy and other natural resources. Wider public
awareness can be supported by increased scientific evidence arising
from systematic research and monitoring activities. The Conference
calls upon the non-governmental organizations to participate, in co-op-
eration with international, regional and national authorities, in the ef-
forts that are needed to respond to the problems of global warming, more specifically in the field of education and awareness building.

(13) Many countries, especially developing countries, will require assistance in identifying the causes of anthropogenic climate change, in establishing its extent and effect and also in responding to it. They will need help in acquiring, using, developing and maintaining technologies that are appropriate to their industrial, energy, transport, forestry and agricultural infrastructure. Industrialized countries will take steps to facilitate the transfer to developing countries of technologies to limit the global climate change through financial assistance and other mechanisms to overcome the incremental costs of acquiring and using these technologies. Furthermore, the capabilities of these countries should be increased so that they can develop appropriate technologies themselves. In this context the concept of assured access to appropriate technologies in relation to proprietary rights needs to be explored.

Given this stage of development of the issue of climate change, the Conference more specifically:

**CARBON DIOXIDE (CO2)**

(14) *Urges* all countries to take steps individually and collectively to promote better energy conservation and efficiency and the use of environmentally sound energy sources, practices and technologies with no or minimum environmentally damaging characteristics. These policies should be reflected in short and long term energy policies and be pursued by all relevant sectors, including industry and transport, taking into account the need of developing countries for an adaptation period in order to enable them to meet their technological and other developmental needs. One direct means of allowing markets to incorporate the risk of climate change could be to ensure that the prices of all fuels reflect their full social, long run marginal and environmental costs and benefits.

(15) *Agrees* that it is timely to investigate quantitative emission targets to limit or reduce CO2 emissions and encourages the IPCC, in their interim report due in 1990, to include an analysis of target options.

(16) *Recognizes* the need to stabilize, while ensuring stable development of the world economy, CO2 emissions and emissions of other greenhouse gases not controlled by the Montreal Protocol. Industrialized nations agree that such stabilization should be achieved by them
as soon as possible, at levels to be considered by the IPCC and the Second World Climate Conference of November 1990. In the view of many industrialized nations such stabilization of CO2 emissions should be achieved as a first step at the latest by the year 2000.

Urges all industrialized countries to support the process of IPCC through the investigation of the feasibility of achieving targets to limit or reduce CO2 emissions including e.g. a 20 percent reduction of CO2 emission levels by the year 2005 as recommended by the scientific World Conference on the Changing Atmosphere in Toronto 1988.

Urges all industrialized countries to intensify their efforts in this respect, while ensuring sustainable development and taking into account the specific circumstances of individual countries.

(17) Agrees that industrialized countries with, as yet, relatively low energy requirements, which can reasonably be expected to grow in step with their development, may have targets that accommodate that development.

(18) Calls on the IPCC to present the analysis and conclusions referred to above to the Second World Climate Conference in November 1990.

(19) Agrees that developing countries endeavor to meet future targets for CO2 emissions and sinks, with due regard to their development requirements and within the limits of their financial and technical capabilities. International co-operation, whenever available, would be a contributing factor for greater action. New processes or industries to be introduced should, as far as possible, incorporate technologies which are more energy-efficient and produce less pollution than present technologies.

(20) Agrees that developing countries will need to be assisted financially and technically, including assistance with training, i.e. by strengthening relevant mechanisms to ensure that they will be in a position to manage, develop, and conserve their forest resources in a sustainable and environmentally sound manner. This will also contribute to combatting erosion and desertification. Recognition by the market of the total value of forests, including non-wood values, is a precondition for developing countries' being able to successfully use such financial and technical assistance for sustainable forest management.

(21) Agrees to pursue a global balance between deforestation on the one hand and sound forest management and afforestation on the other. A world net forest growth of 12 million hectares a year in the beginning of next century should be considered as a provisional aim.
Requests the IPCC to consider the feasibility of achieving this aim. To this end: the world deforestation rate should be slowed inter alia through the suppression of acid rain and other pollutants and of fires and through the reduction of pressures on biota. Sound forest management practices should be encouraged and at the same time vigorous forestry programmes should be developed in both temperate and tropical zones; biological diversity should be maintained; strategies addressing climate change issues through forest management and afforestation should be integrated with strategies addressing the sustainability of other forest based values resulting in full multiple-use plans where appropriate, but with due consideration of the people living in or dependent on forest land.

Welcomes the work of the Tropical Forestry Action Plan and the International Timber Trade Organization in pursuit of these goals.

CHLOROFLUOROCARBONS (CFCs)

(22) Welcomes the commitment of the industrialized countries to amend the Montreal Protocol and to phase out the production and consumption of controlled chlorofluorocarbons by the year 2000, and of other controlled ozone depleting substances as soon as feasible.

Urges all countries to become Parties to the Vienna Convention for the Protection of the Ozone Layer and to the Montreal Protocol. To facilitate this broad participation, suitable amendments of the Montreal Protocol should be considered urgently by the Parties to the Protocol.

Urges industrialized countries to use financial and other means to assist developing countries in phasing out their production and consumption of controlled substances as soon as possible, by providing them with sufficient means to enable them to meet their target date. The development of alternative technologies and products in developing countries should be promoted.

OTHER GREENHOUSE GASES

(23) Recommends that the development and implementation of specific means of limiting the atmospheric concentrations of greenhouse gases other than CO2 and CFCs should be energetically pursued, taking into consideration the special situation of developing countries.
MINISTERIAL MEETING

(24) Recognizes the need to convene a Ministerial Conference to review the interim report of the IPCC. The conference endorses the plan of the organization by WMO, UNEP, UNESCO and ICSU of such a meeting as part of the Second World Climate Conference in November 1990.

FUNDING

(25) Recommends that existing institutions for development and financial assistance including the Multilateral Development Banks, Bilateral Assistance Programmes, the relevant United Nations organizations and specialized agencies, and scientific and technological organizations should give greater attention to climate change issues within their environmental and other relevant programmes by providing expanded funding including concessional funding. In addition, regional and subregional co-operation should be reinforced and funded so as to address and implement the required action at that level.

(26) Recommends that additional resources should, over time, be mobilized to help developing countries take the necessary measures to address climate change and that are compatible with their development requirements.

Further recommends that the scope of resources needed must be assessed. Such assessments should include inter alia country studies and the capabilities of existing institutions and mechanisms to meet the financing needs identified, similar to the approaches developed under the Montreal Protocol.

Further consideration should be given to the need for funding facilities including a clearinghouse mechanism and a possible new international fund and their relationship to existing funding mechanisms, both multilateral and bilateral. Such funding should be related to the implementation of a future climate convention and associated protocols. In the meantime, the donor community is urged to provide assistance to developing countries to support actions addressing climate change.

(27) Recommends that, initially, international funding be directed towards

(i) funding of a CFC phase-out in developing countries in the context of the Montreal Protocol;
(ii) promoting efficient use of energy, including appropriate end use technologies, increasing the use of non-fossil fuels and switch-
ing to energy sources with lower greenhouse gas emissions, and the use of renewable energy sources;

(iii) increased financial support for forest protection and forest management improvement, for example through the Tropical Forestry Action Plan (TFAP), the Plan of Action to Combat Desertification, the International Tropical Timber Organization (ITTO) and other relevant international organizations;

(iv) assisting developing countries in planning how to address problems posed by climate change;

(v) supporting developing countries to enable their participation in the IPCC process and the other international meetings on this subject;

(vi) conducting research and monitoring;

(vii) arranging for technology transfer to and technology development in developing countries;

(viii) promoting public awareness, education and institutional and manpower development.

The use of financial resources could subsequently be extended *inter alia* to major energy sources with little or no environmentally damaging characteristics and for steps to reduce other global man-made emissions of greenhouse gases.

**RESEARCH AND MONITORING**

(28) *Urges* all countries and relevant organizations to increase their climate change research and monitoring activities and to provide for adequate data bases on emissions. *Also urges* states to co-operate in, and provide increasing support for, international co-ordination of these activities building on international programmes such as the World Climate Programme and the International Geosphere Biosphere Programme, and on the present roles of the UNEP, WMO, ICSU, IEA, UNESCO, IOC, IGBP and other competent international organizations and bodies. The enhancement and strengthening of operational aspects of their work should be examined.

*Recommends* that more research should be carried out by 1992 into the sources and sinks of the greenhouse gases other than CO2 and CFCs, like methane (CH4), nitrous oxide (N2O) and tropospheric ozone (O3), including further research on the effect of the ocean on the concentration of radioactively active gases in the atmosphere.
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CLIMATE CHANGE CONVENTION

(29)1. Urges all countries to join and intensify the ongoing work within UNEP and WMO through the IPCC with respect to the compilation of elements for a framework convention on climate change so that negotiations upon it can start as soon as possible after the adoption of the interim report of the IPCC.

2. Recommends that such convention will be framed in such a way as to gain the adherence of the largest possible number and most suitably balanced spread of countries.

3. Agrees that to this end the framework convention and associated protocols should commit the parties *inter alia* to:
   - enhancement of research and systematic observation of climate, aimed at detecting and monitoring climate variations and change;
   - action to deal with greenhouse gas emissions and the effects of global warming;
   - address the particular financial needs of the developing countries in the access to and transfer of technology; and
   - strengthen sustainable forest management.

4. Agrees further that in developing the framework convention on climate change special attention should be given to ensuring that provision is made for appropriate decision making procedures and powers.

5. Urges all involved or to be involved in the negotiations to do their utmost to conclude these negotiations to ensure adoption of the convention as early as 1991 if possible and no later than at the Conference of the United Nations on Environment and Development in 1992.

6. Considers that in the preparation of the framework convention and protocols the relevant aspects of the Vienna Convention on the Protection of the Ozone Layer should be taken into account, as well as innovative approaches as may be required by the complex character of the problem.

(30) Recommends that this declaration and the supporting papers be conveyed to the IPCC at the conclusion of this Conference for further consideration and action.
Environmental issues facing the world today clearly demonstrate that organisms and all the elements of nature including land, water and air cannot be exploited without far-reaching implications for the earth and its environment. It has been proved more conclusively than at any other time in history that the welfare of mankind is inextricably linked to the state of the environment. It has also been established that atmospheric concentrations of carbon dioxide and other greenhouse gases have increased over the last two centuries. These increases are seriously threatening to cause climate change, global warming and sea level rise, which have become common concerns of mankind.

There is now a broad scientific consensus that the global mean temperature could rise approximately by 1(°C) to 2(°C) by the year 2030. It is predicted that even if the increases in atmospheric concentrations of greenhouse gases were to be brought to a standstill immediately, however unrealistic that may be, the global temperature and sea level would continue to rise for decades to come. Although the entire world would be adversely affected by these processes, low-lying, small, coastal and island States will face a decidedly greater predicament. Sea-level rise would cause extensive damage to the land and infrastructure of those countries and even threaten the very survival of some island states. The possibility also exists of an increase in frequency and/or intensity of natural disasters related to climate change, global warming and sea level rise.

Paradoxically the catalyst in this disturbing state of the global environment has been the rapid development of industrialization that was intended to lead to material progress. In view of the fact that the overloading of the atmosphere with greenhouse gases occurred primarily through the actions of the industrialized nations during the past two hundred years, these nations now have a moral obligation to initiate on an urgent basis, international action to stabilize and subsequently reduce emissions of greenhouse gases and to sponsor, as a matter of priority, an urgent worldwide programme of action to combat the serious implications of climate change, global warming and sea level rise. In addition, resources and technology should be made available by the industrialized nations, particularly to the most vulnerable States, which
may not have the financial and technical means to address these problems.

A continuing dialogue between the small States and the rest of the world on the issue of sea level rise needs to be initiated. The small States call for an international response, especially from the developed and industrialized nations of the world. The likely effects of sea level rise urgently need to be established more accurately, and an effective international strategy for the small States of the world to cope with those impacts should be agreed upon as a separate issue within a global strategy. In this connection, the WMO/UNEP Intergovernmental Panel on Climate Change (IPCC) is recognized as the main forum for the on-going work on science, impacts and response strategies of climate change.

In the light of the scientific consensus regarding the likelihood of climate change and global warming and deeply concerned over the changing global environment and its possible adverse effects, particularly the threat of sea level rise, the Small States gathered here in Male' from 14 - 18 November 1989, declare their intent to work, collaborate and seek international cooperation to protect the low-lying small coastal and Island States of the world from the dangers posed by climate change, global warming and sea level rise.

THEREFORE, WE, THE REPRESENTATIVES OF THE SMALL STATES GATHERED HERE:

1. Decide to develop a programme of action within the small States, for cooperation and exchange of information on strategies and policies in relation to climate change, global warming and sea level rise which are common concerns of mankind; and in particular, to:

   (a) establish an Action Group, initially comprising of representatives from the Caribbean, South Pacific, Mediterranean and 'the Indian Ocean regions, to oversee the implementation of the decisions and recommendations of the Small States Conference on Sea Level Rise, to coordinate a joint approach on the issues of climate change, global warming and sea level rise, and to pursue and follow up on global and regional response strategies;

   (b) consider the establishment of a climate and sea level programme and a monitoring network as an important component within the global measuring systems; recognizing the urgent necessity to take initial measures to create a monitoring infrastructure, bearing in mind the specific interests of small developing island States, to apply to the appropriate United Nations Agencies (in particular WMO, UNEP,
UNESCO) for assistance in its implementation;

(c) mount a campaign to increase awareness of the international community of the particular vulnerability of the small States to sea level rise;

(d) consider the most effective manner in which the small States can participate in the work of the Intergovernmental Panel on Climate Change, and seek assistance for such participation; and

(e) seek assistance from the UN, its Agencies and other appropriate institutions in the Implementation of the decisions contained in this Declaration.

2. **Call** upon all States of the world family of nations to take immediate and effective measures according to their capabilities and the means at their disposal, to control, limit or reduce the emission of greenhouse gases, and to consider ways and means of protecting the small States of the world which are most vulnerable to sea level rise.

3. **Urge** all states to take immediate measures to enhance energy efficiency and to formulate plans and strategies for a change over, as far as possible, to alternative, less environmentally harmful sources of energy.

4. **Recommend** that where necessary all States take immediate measures to establish the institutional framework to protect and manage their coastal zones and to enact legislation to facilitate such measures.

5. **Call** upon all States to undertake environmental impact assessments for all development projects, review existing development programmes in terms of environmental impact assessment and strengthen environmental management capabilities.

6. **Recommend** that small coastal and island States take adequate measures to maintain aquifers and protect vulnerable natural ecosystems such as coral reefs and mangroves which may already be at risk, as they can provide natural protection against the adverse effects of climate change, global warming and sea level rise.

7. **Appeal** to all States to embark on intensive afforestation and/or revegetation programmes with emphasis on the selection of plants and trees suitable for the different soil conditions, and salt-tolerant varieties for the protection of coastal areas.
8. **Recommend** that research be intensified in understanding the complex interrelationships concerning climate change, greenhouse effect, sea level rise and their implications on the environment and also to determine methods of ameliorating the impacts of these changes on coastal ecosystems.

9. **Urge** the industrialized nations to develop modalities and mechanisms to facilitate funding, technology transfer and training in areas related to the causes and problems associated with the rise in sea level. In this regard, the States facing immediate threat should be assigned a higher priority for assistance.

10. **Support** the call by the developing countries of the world for the strengthening of the existing funding, technology transfer and information mechanisms, not excluding the development of new mechanisms to assist them in implementing measures to control, limit or reduce emissions of greenhouse gases and adapt to and protect themselves from the adverse effects of unavoidable climate change, global warming and sea level rise. Such mechanisms would also help to ensure that the transition to a more and environmentally sound worldwide programme of sustainable development can be achieved.

11. **Call** for negotiations for a framework convention on climate change to start as soon as possible after the adoption of the interim report of the Intergovernmental Panel on Climate Change.
PROTECTION OF GLOBAL CLIMATE FOR PRESENT AND FUTURE GENERATIONS OF MANKIND

RESOLUTION BY THE UNITED NATIONS GENERAL ASSEMBLY

DECEMBER 19, 1989

A/44/862
Forty-fourth session
Agenda item 85

I. INTRODUCTION

1. At its 3rd plenary meeting, on 22 September 1989, the General Assembly, on the recommendation of the General Committee, decided to include in its agenda the item entitled “Protection of global climate for present and future generations of mankind” and to allocate it to the Second Committee.

2. The Second Committee considered the item at its '18th, 21st to 24th and 33rd, 40th, 48th and 51st meetings, on 23, 25 and 27 October, 15 and 20 November and 4 and 17 December. An account of the Committee’s general discussion of the item is contained in the relevant summary records (A/C.2/44/SR.18, 21-24 and 33, 40, 48 and 51). Attention is also drawn to the general debate held by the Committee at its 2nd to 10th meetings, from 2 to 6 and 9 October (A/C.2/44/SR.2-10).

3. For its consideration of the item, the Committee had before it the following documents:

A/44/260 Letter dated 27 April 1989 from the Permanent Representative of Brazil to the United Nations addressed to the Secretary-General transmitting the text of the address by H.E. Mr. Jose Sarney, President of the Federative Republic of Brazil, at the Sixth Ministerial Meeting on the Environment in Latin America and the Caribbean

A/44/264
E/1989/73 Letter dated 2 May 1989 from the Permanent Representative of the Union of Soviet Socialist Republics to the United Nations addressed to the Secretary-General transmitting a letter dated 30 April 1989 from the Minister for Foreign Affairs of the Union of Soviet Socialist Republics addressed to the Secretary-General on proposals concerning the ways of establishing objectives and functions of a centre for emergency environmental assistance

A/44/394 Letter dated 14 July 1989 from the Permanent Representa-
tive of the Netherlands to the United Nations addressed to the Secretary-General transmitting a letter addressed to the Heads of State or Government of the seven major industrialized countries concerning environmental issues facing the world at the present time.

A/44/409-S/20743
and Corr.1 and
Corr.2 Letter dated 19 July 1989 from the Charge d'affaires a.i. of the Permanent Mission of Zimbabwe to the United Nations addressed to the Secretary-General transmitting the text of the Ministerial Meeting of the Co-ordinating Bureau of the Movement of Non-Aligned Countries held at Harare from 17 to 19 May 1989

A/44/463 Letter dated 11 August 1989 from the Charge d'affaires a.i. of the Permanent Mission of Solomon Islands to the United Nations addressed to the Secretary-General transmitting the Final Communique of the Twentieth South Pacific Forum, held at Tawara, Kiribati, on 10 and 11 July 1989

A/44/477 Letter dated 22 August 1989 from the Permanent Representative of Grenada to the United Nations addressed to the Secretary-General transmitting the communique of the tenth Meeting of the Conference of Heads of Government of the Caribbean Community held at Grand Anse, Grenada, from 3 to 7 July 1989

A/44/484 Report of the Secretary-General on the protection of global climate for present and future generations of mankind

A/44/683 Letter dated 25 October 1989 from the Permanent Representative of Brazil to the United Nations addressed to the Secretary-General transmitting the Declaration of Brasilia, issued by the Ministers of State in charge of environmental management and the representatives of the countries participating in the Sixth Ministerial Meeting on the Environment in Latin America and the Caribbean, held at Brasilia on 30 and 31 March 1989

A/44/689-S/20921
Letter dated 26 October 1989 from the Permanent Representative of Malaysia to the United Nations addressed to the Secretary-General transmitting the text of the communique adopted by the Commonwealth Heads of Government Meeting on 24 October 1989

A/44/694 Letter dated 23 October 1989 from the Permanent Representatives of Argentina, Brazil, Colombia, Mexico, Peru, Uruguay and Venezuela to the United Nations addressed to the Secretary-General
transmitting the texts of the Ica Declaration and Communique issued on 12 October 1989 by the Presidents of Argentina, Brazil, Colombia, Mexico, Peru, Uruguay and Venezuela at the Third Meeting of the Permanent Mechanism for Consultation and Concerted Political Action

A/C.2/44/2 Letter dated 27 September 1989 from the Permanent Representative of Canada to the United Nations addressed to the Secretary-General transmitting the Statement of the Meeting of Legal and Policy Experts, which met at Ottawa from 20 to 22 February 1989

A/C.2/44/5 Letter dated 20 November 1989 from the Permanent Representative of the Netherlands to the United Nations addressed to the Secretary-General transmitting the text of the Declaration of the Ministerial Conference on Atmospheric Pollution and Climate Change, held in Noordwijk, the Netherlands, on 6 and 7 October 1989

A/C.2/44/7 Letter dated 20 November 1989 from the Permanent Representatives of Maldives to the United Nations addressed to the Secretary-General transmitting the text of the Male’ Declaration on Global Warming and Sea Level Rise, adopted by the Small States’ Conference on Sea Level Rise, held in Male’, Maldives from 14 to 18 November 1989

A/C.2/44/8 Letter dated 20 November 1989 from the Permanent Representative of Maldives to the United Nations addressed to the Secretary-General transmitting the text of the inaugural address by His Excellency Maumoon Abdul Gayoom, President of the Republic of Maldives, to the Small States’ Conference on Sea Level Rise, held in Male’, Maldives from 14 to 18 November 1989

4. At the 18th meeting, on 23 October, the Executive Director of the United Nations Environment Programme made an introductory statement (see A/C.2/44/SR.18).

II. CONSIDERATION OF PROPOSALS

A. Draft resolutions A/C.2/44/L.38 and Rev.1

5. At the 33rd meeting, on 15 November, the representative of Australia introduced a draft resolution (A/C.2/44/L.38) entitled “Adverse effects of sea level rise on islands and low-lying coastal areas”, on behalf of Australia, Austria, the Bahamas, Bangladesh, Barbados, Bulgaria, Canada, Czechoslovakia, Denmark, Fiji, Finland, Haiti, Jamaica, Malaysia, Malta, Mauritius, the Netherlands, New Zealand, Norway,
Papua New Guinea, Saint Vincent and the Grenadines, Samoa, Singapore, Solomon Islands, Sweden, the United Kingdom of Great Britain and Northern Ireland and Vanuatu, subsequently joined by Cape Verde, Maldives, Myanmar, the Philippines and Sri Lanka. The draft resolution read as follows:

"The General Assembly,

"Recalling its resolution 42/202 of 11 December 1987 and 43/53 of 6 December 1988,

"Aware of the global problem of sea level rise, which could adversely affect islands and low-lying coastal areas,

"Noting the final communique of the Twentieth South Pacific Forum held at Tarawa, Kiribati, on 10 and 11 July 1989, in which the Forum expressed concern at the possible effect on island countries of rising sea levels resulting from global warming and agreed that world attention should be drawn to the way the environmental problem affected the South Pacific region, 4

"Noting also the Langkawi Declaration on Environment issued in Kuala Lumpur on 21 October 1989 by Heads of Government of the Commonwealth, in which they expressed support for low-lying and island countries in their efforts to protect themselves and their vulnerable natural marine ecosystems from the effects of sea-level rise, 5

"Expressing concern that sea level rise resulting from global warming could possibly lead, inter alia, to abnormally high tides, which could intensify the erosion of coastal areas and damage infrastructure in islands and low-lying coastal areas,

"1. Welcomes the growing attention being given world wide to the potentially serious effects on islands and low-lying coastal areas of sea level rise resulting from global warming;

"2. Urges the international community to develop and implement strategies that would provide effective and timely support to islands and low-lying coastal areas in addressing problems of climate change and protecting themselves and their vulnerable natural marine ecosystems from the particular threats of sea level rise;

"3. Requests the United Nations Environment Programme, the World Meteorological Organization and their Intergovernmental Panel on Climate Change to take account in their work of the particular situation of islands and low-lying coastal areas and to seek ways to address the problems of sea level rise, inter alia, through improved manage-

1. A/44/463, annex, para. 20.
2. A/44/673, para. 8 (k).
6. At the 48th meeting, on 4 December, the Vice-Chairman of the Committee, Mr. David Payton (New Zealand), made a statement in which he informed the Committee of the results of informal consultations held on draft resolution A/C.2/44/L.38 and drew the Committee's attention to a revised draft resolution (A/C.2/44/L.38/Rev.1), submitted by the sponsors of draft resolution A/C.2/44/L.38, now joined by Antigua and Barbuda, Argentina, Bahrain, Belgium, Brunei Darussalam, Cyprus, Dominica, the German Democratic Republic and Trinidad and Tobago, on the basis of informal consultations on that draft resolution. The Federal Republic of Germany, Guyana, Iran (Islamic Republic of), Morocco and Poland subsequently joined in co-sponsoring the revised draft resolution.

7. At the same meeting, the Committee adopted draft resolution A/C.2/44/L.38/Rev.1 by consensus (see para. 14, draft resolution I).

8. After the adoption of the revised draft resolution, the representative of Australia made a statement (see A/C.2/44/SR.48).

B. Draft resolutions A/C.2/44/L.40 and Rev.1

9. At the 40th meeting, on 20 November, the representative of Malta introduced a draft resolution (A/C.2/44/L.40) entitled "Protection of global climate for present and future generations of mankind, on behalf of Australia, Austria, Bahrain, Bangladesh, Barbados, Belgium, Canada, Czechoslovakia, Denmark, Fiji, Finland, France, the Gambia, Germany, Federal Republic of, Jamaica, Kenya, Luxembourg, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Morocco, Nepal, the Netherlands, New Zealand, Norway, Papua New Guinea, Paraguay, the Philippines, Poland, Samoa, Senegal, Sierra Leone, Solomon Islands, Spain, Sweden, Togo, Turkey, Vanuatu and Yugoslavia, subsequently joined by Argentina, Belgium, China, the German Democratic
Republic, Guinea-Bissau, Ireland, Italy, Singapore and Thailand. The draft resolution read as follows:

"The General Assembly,

Recalling its resolution 43/53 of 6 December 1988, in which it recognized climate change as a common concern of mankind,

Recalling also decision 15/36 of 25 May 1989 of the Governing Council of the United Nations Environment Programme on global climate change,\(^3\)

Noting the message of the Chairman of the Conference on Saving the Ozone Layer, held in London in March 1989, The Declaration of The Hague adopted on 11 March 1989,\(^4\) the Helsinki Declaration on the Protection of the Ozone Layer adopted in May 1989, the Langkawi Declaration on Environment, issued by the Commonwealth Heads of Government at their meeting in Kuala Lumpur on 21 October 1989\(^5\) and the Declaration adopted at Noordwijk by the Ministerial Conference on Atmospheric Pollution and Climate Change in November 1989,

Noting also the communiqué of 16 July 1989 adopted in Paris at the fifteenth annual economic summit by seven major industrialized countries and the President of the Commission of the European Communities which supported the decision of the World Meteorological Organization to establish a global reference network to detect climate change, agreed that a framework convention on climate was urgently required and recognized that specific protocols with commitments could develop within this framework,

Noting further the conclusions of the Ninth Conference of Heads of State or Government of the Non-aligned Movement held at Belgrade in September 1989, which, inter alia, emphasized that necessary and timely action should be taken to deal with climate changes and their consequences within a global framework and, in this context, called for the preparation and adoption of a framework convention on climate on an urgent basis in conformity with General Assembly resolution 45/53,

Recognizing the need for international collaboration to adopt effective measures on the question of climate change, within a global framework, and taking into account the particular needs and development priorities of developing countries,

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5. A/44/673, annex.
1. Welcomes the emerging consensus on the need to address with urgency the question of climate change as reflected in the conclusions of various important international meetings;

2. Urges Governments and intergovernmental organizations to collaborate in making every possible effort, in keeping with their national policies, priorities and regulations, to limit, reduce and prevent adverse climate change and calls upon non-governmental organizations, industry and other productive sectors to play their due role;

3. Welcomes also the joint efforts to the World Meteorological Organization and the United Nations Environment Programme in providing support to the urgent work being undertaken by the Intergovernmental Panel on Climate Change and its three Working Groups established to report on scientific assessments, social and economic impact climate change and the formulation of response strategies;

4. Invites all Governments to participate actively in the work of the Intergovernmental Panel;

5. Urges the Intergovernmental Panel to take the necessary steps to ensure the scientific and policy participation of developing countries and invites the international community to provide assistance in this respect;

6. Endorses decision 15/36 adopted by the Governing Council of the United Nations Environment Programme, which, inter alia, requested the Executive Director, in co-operation with the Secretary-General of the World Meteorological Organization, to begin preparation for negotiations on a framework convention on climate, taking into account the work of the Intergovernmental Panel, as well as the results achieved at international meetings on the subject, and recommended that such negotiations be initiated as soon as possible after the adoption of the interim report of the Intergovernmental Panel;

7. Urges Governments, intergovernmental organizations, non-governmental organizations and scientific institutions to collaborate in efforts to prepare as a matter of urgency a framework convention on climate, with specific protocols containing concrete commitments in the light of priorities that may be authoritatively identified on the basis of sound scientific knowledge, and taking into account the particular concerns of developing countries;

8. Recommends that Governments and competent intergovernmental organizations consider, while awaiting the outcome of the negotiations, the range of possible options for averting the potentially damaging impacts of climate change as outlined in paragraph 11 of decision 15/36 of the Governing Council of the United Nations Environment Programme;
9. Encourages Governments and relevant international organizations to further the development of international funding mechanisms, not excluding a possible climate fund, for additional assistance in particular to developing countries, for the implementation of national and international policies to protect the environment from climate change;

10. Requests the Secretary-General, in the context of ongoing intergovernmental and other efforts in this field, to continue with his support for the formulation and implementation of strategies to respond to climate change;

11. Also requests the Secretary-General to bring the present resolution to the attention of all Governments, as well as intergovernmental organizations, non-governmental organizations in consultative status with the Economic and Social Council and recognize scientific institutions with expertise in matters concerning climate;

12. Further requests the Secretary-General to report to the General Assembly at its forty-fifth session on the progress achieved in the implementation of the present resolution;

13. Decides to include this item in the provisional agenda of its forty-fifth session."

10. At the 51st meeting, on 17 December, the Vice-Chairman of the Committee, Mr. David Payton (New Zealand), made a statement in which he informed the Committee of the results of the informal consultations held on draft resolution A/C.2/44/L.40 and drew the Committee's attention to a revised draft resolution (A/C.2/44/L.40/Rev.1), submitted by the sponsors of draft resolution A/C.2/44/L.40, subsequently joined by Cote d'Ivoire, on the basis of informal consultations held on that draft resolution.

11. At the same meeting, following statements by the representative of Nigeria, the Secretary of the Committee, the Vice-Chairman of the Committee, Mr. David Payton (New Zealand), and the representatives of Nigeria, New Zealand, Algeria, Venezuela and Malta, the Committee adopted draft resolution A/C.2/44/L.40/Rev.1 without a vote(see para. 14, draft resolution II).

12. After the adoption of the draft resolution, statements were made by the representatives of the United States of America and Malta.

C. Report of the Secretary-General on the protection of the global climate for present and future generations of mankind

6. A/44/484.
13. At the 51st meeting, on 17 December, upon the proposal of the Chairman, the Committee decided to recommend to the General Assembly that it should take note of the report of the Secretary-General on the protection of global climate for present and future generations of mankind, (see para. 14, draft decision).

III. RECOMMENDATIONS OF THE SECOND COMMITTEE

14. The Second Committee recommends to the General Assembly the adoption of the following draft resolution:

DRAFT RESOLUTION I

Possible adverse effects of sea-level rise on islands and coastal areas, particularly low-lying coastal areas

The General Assembly,

Recalling its resolutions 42/202 of 11 December 1987 and 43/53 of 6 December 1988,

Aware of the potential global problem of sea-level rise, which could adversely affect islands and coastal areas, particularly low-lying coastal areas,

Recognizing the need for further scientific study of climate change, including the possibility of sea-level rise induced by global warming,

Noting the ongoing work within the United Nations system, in particular within the United Nations Environment Programme, the World Meteorological Organization and the Intergovernmental Panel on Climate Change, on the potential global problem of sea-level rise and, in this connection, decision 15/36 of 25 May 1989 on global climate change adopted by the Governing Council of the United Nations Environment Programme,

Noting that the South Pacific Forum expressed concern in the final communique of its twentieth meeting, held at Tarawa, Kiribati, on 10 and 11 July 1989, at the possible effects on island countries of rising sea levels resulting from global warming,

Noting also that the Heads of Government of the Commonwealth, in the Langkawi Declaration of 21 October 1989, expressed support for low-lying and island countries in their efforts to protect themselves and their vulnerable natural marine ecosystems from the effects of sea-level rise.

Noting further the Male' Declaration on Global Warming and Sea Level Rise, issued at the Small States Conference on Sea Level Rise held in Male', Maldives, from 14 to 18 November 1989, in which the participants declared their intent to work, collaborate and seek international co-operation to protect the low-lying small coastal island States of the world from the dangers posed by climate change, global warming and sea-level rise,

Expressing concern that sea-level rise resulting from global climate change could lead, inter alia, to abnormally high tides, which could intensify flooding and the erosion of coastal areas and damage infrastructure in islands and low-lying coastal areas,

1. Welcomes the growing attention being given world-wide to the potentially serious effects on islands and coastal areas, particularly low-lying coastal areas, of sea-level rise resulting from climate change;

2. Urges the international community to provide effective and timely support to countries affected by sea-level rise, particularly developing countries, in their efforts to develop and implement strategies to protect themselves and their vulnerable natural marine ecosystems from the particular threats of sea-level rise caused by climate change;

3. Requests the Secretary-General to invite the United Nations Environment Programme, the World Meteorological Organization and, through them, the Intergovernmental Panel on Climate Change to take account in their work of the particular situation of islands and coastal areas, particularly low-lying coastal areas, by undertaking further scientific studies and by seeking ways to address the problems of sea-level rise, inter alia, by providing expertise, as requested, in accordance with their specific mandates for improved management of coastal zones;

4. Recommends that the vulnerability of affected countries and their marine ecosystems to sea-level rise be considered during discussions of a draft framework convention on climate, and within the framework of the United Nations conference on environment and development to be held in 1992 and during its preparatory process;

5. Requests the Secretary-General to report on the implementation of the present resolution to the General Assembly at its forty-sixth session, through the Economic and Social Council and the Governing Council of the United Nations Environment Programme.

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8. A/44/673, para. 8 (k).
Protection of global climate for present and future generations of mankind

The General Assembly,

Recalling its resolution 43/53 of 6 December 1988, in which it recognized climate change as a common concern of mankind,

Recalling also decision 15/36 of 25 May 1989 of the Governing Council of the United Nations Environment Programme on global climate change,¹⁰

Noting the message of the Chairman of the Conference on Saving the Ozone Layer, held in London in March 1989, the Declaration adopted at The Hague in March 1989,¹¹ the Helsinki Declaration of the Protection of the Ozone Layer adopted in May 1989, the relevant parts of the Langkawi Declaration issued by the Commonwealth Heads of Government at their meeting in Malaysia in October 1989,¹² the Declaration adopted at Noordwijk, the Netherlands, by the Ministerial Conference on Atmospheric Pollution and Climate Change held on 6 and 7 November 1989,¹³ and relevant parts of the Caracas Declaration adopted at the Special Ministerial Meeting of the Group of 77,¹⁴ held at Caracas from 21 to 23 June 1989,

Noting the relevant declarations and decisions adopted at intergovernmental regional meetings during 1989, including the Amazon Declaration,¹⁵ adopted on 6 May by the Presidents of the States Parties to the Treaty for Amazonian Co-operation at their meeting in Manaus, Brazil, the Declaration of Brasilia,¹⁶ adopted at Brasilia in March, and the relevant parts of the final Communique of the Twentieth South Pacific Forum, held at Tarawa, Kiribati, in July,¹⁷

Noting also the relevant parts of the Communique of 16 July 1989 adopted in Paris at the fifteenth annual economic summit by seven major industrial nations and the President of the Commission of the European Communities, which supported the decision of the World Meteorological Organization to establish a global reference network to

¹². A/44/673, annex.
¹³. A/C.2/44/5, annex.
¹⁴. A/44/361, annex.
¹⁵. A/44/275, annex.
¹⁶. A/44/683, annex.
¹⁷. A/44/463, annex.
detect climate change, agreed that a framework convention on climate was urgently required and recognized that specific protocols with commitments could develop within this framework, Noting further the conclusions of the Ninth Conference of Heads of State or Government of the Movement of Non-Alligned Countries, held at Belgrade in September 1989,\textsuperscript{18} which, inter alia, emphasized that necessary and timely action should be taken to deal with climate changes and their consequences within a global framework and, in this context, called for the preparation and adoption of a framework convention on climate on an urgent basis in conformity with General Assembly resolution 43/53,

Recognizing the need for additional research and scientific studies into all sources, causes and effects of climate change,

Noting the fact that the largest part of the current emission of pollutants into the environment originates in developed countries, and recognizing therefore that those countries have the main responsibility for combating such pollution,

Recognizing the need for international collaboration with a view to adopting effective measures on the question of climate change, within a global framework and taking into account the particular needs and development priorities of developing countries,

Concerned that the participation of the developing countries in the Intergovernmental Panel on Climate Change remains limited, and stressing the need for the Intergovernmental Panel on Climate Change, in view of its intergovernmental nature, to do all that it can to ensure adequate participation and governmental involvement in its activities in accordance with United Nations practice,

1. Emphasizes the need to address with urgency the question of climate change as reflected in the conclusions of various important international meetings;

2. Recommends that Governments, with due consideration of the need for increased scientific knowledge of the sources, causes and impact of climate change and of global, regional and local climates, continue and, wherever possible, increase their activities in support of the World Climate Programme and the International Geosphere-Biosphere Programme, including the monitoring of atmospheric composition and climate conditions, and further recommends that the international community support efforts by developing countries to participate in these scientific activities;

3. Urges Governments, in keeping with their national policies, priorities and regulations and intergovernmental organizations to collaborate with the Intergovernmental Panel on Climate Change, in accordance with United Nations practice.

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\textsuperscript{18} A/44/551-S/20870, annex.
in making every possible effort to limit, reduce and prevent activities that could adversely affect climate, and calls upon non-governmental organizations, industry and other productive sectors to play their due role;

4. **Reaffirms** that States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their environmental policies, and also reaffirms their responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction and the need to play their due role in preserving and protecting the global and regional environment in accordance with their capacities and specific responsibilities;

5. **Reaffirms** that the United Nations system, through the General Assembly, owing to its universal character, is the appropriate forum for concerted political action on global environmental problem;

6. **Welcomes** the joint efforts of the World Meteorological Organization and the United Nations Environment Programme in providing support to the urgent work being undertaken by the Intergovernmental Panel on Climate Change and its three Working Groups established to assess scientific information on, and the social and economic impact of, climate change and to formulate response strategies;

7. **Invites** all Governments, as well as relevant intergovernmental and non-governmental organizations, to support fully and participate actively in the work of the Intergovernmental Panel;

8. **Welcomes** the establishment of the Intergovernmental Panel on Climate Change Trust Fund and the contributions made to it;

9. **Urge** s the Intergovernmental Panel to take the necessary steps to ensure the scientific and policy participation of developing countries in its work, and calls upon the international community, in particular the developed countries, to consider contributing generously to the Trust Fund, with a view to financing the participation of experts designated by Governments of developing countries in all the meetings of the panel, including its working groups and subgroups;

10. **Supports** the request made by the Governing Council of the United Nations Environment Programme, in its decision 15/36, that the Executive Director of the Programme, in co-operation with the Secretary-General of the World Meteorological Organization, begin preparations for negotiations on a framework convention on climate, taking into account the work of the Intergovernmental Panel on Climate Change, as well as the results achieved at international meetings on the subject, including the Second World Climate Conference, and recom-
mends that such negotiations begin as soon as possible after the adop-
tion of the interim report of the Intergovernmental Panel on Climate
Change and that the General Assembly at an early date during its
forty-fifth session take a decision recommending ways and means and
modalities for further pursuing these negotiations, taking into account
the work of the preparatory committee for the conference on environ-
ment and development to be held in 1992;

11. Requests the Secretary-General to circulate for the information
of delegations the reports of the third and fourth plenary sessions of the
Intergovernmental Panel on Climate Change, as well as its interim re-
port, as official documents of the forty-fifth session of the General
Assembly;

12. Urges Governments, intergovernmental organizations, non-gov-
ernmental organizations and scientific institutions to collaborate in ef-
forts to prepare as a matter of urgency a framework convention on cli-
mate, and associated protocols containing concrete commitments in the
light of priorities that may be authoritatively identified on the basis of
sound scientific knowledge, and taking into account the specific devel-
opment needs of developing countries;

13. Recommends that Governments and competent intergovernmen-
tal organizations consider, while awaiting the outcome of the negotia-
tions, the range of possible options for averting the potentially damag-
ing impacts of climate change, for removing the causes of the
phenomenon and for developing programmes for implementing those
more appropriate to national needs as outlined in paragraphs 11 (a) to
(f) of decision 15/36 of the Governing Council of the United Nations
Environment Programme;

14. Encourages Governments and relevant international organiza-
tions to further the development of international funding mechanisms,
taking account of proposals for a climate fund and other innovative
ideas, bearing in mind the need to provide new and additional financial
resources to support developing countries in identifying, analysing,
monitoring, preventing and managing environmental problems, primar-
ily at their source, in accordance with national development goals,
objectives and plans, so as to ensure that development priorities are not
adversely affected;

15. Decides that the concept of assured access to and transfer of en-
vironmentally sound technologies for developing countries on favour-
able terms and its relation to intellectual property rights should be ex-
plored in the context of the elaboration of a framework convention on
climate with a view to developing effective responses to the needs of
developing countries in this area;
16. Requests the Secretary-General, in the context of ongoing intergovernmental and other efforts in this field, to continue his support for the formulation and implementation of strategies to respond to climate change;

17. Also requests the Secretary-General to bring the present resolution to the attention of all Governments, as well as intergovernmental organizations, non-governmental organizations in consultative status with the Economic and Social Council and scientific institutions with expertise in matters concerning climate;

18. Further requests the Secretary-General to report to the General Assembly at its forty-fifth session on the progress achieved in the implementation of the present resolution;

19. Decides to include this item in the provisional agenda of its forty-fifth session, without prejudice to the application of the principle of biennialization.

15. The Second Committee recommends to the General Assembly the adoption of the following draft decision: Report of the Secretary-General on the protection of global climate for present and future generations of mankind.

The General Assembly decides to take note of the report of the Secretary-General on the protection of global climate for present and future generations of mankind.19

19. A/44/484.
The General Assembly,

Recalling its resolution 43/196 of 20 December 1988 on a United Nations conference on environment and development,

Taking note also of Economic and Social Council resolution 1989/87 of 26 July 1989 on the convening of a United Nations conference on environment and development,

Taking note of Economic and Social Council resolutions 1989/101 of 27 July 1989 entitled “Strengthening international co-operation on environment: provision of additional financial resources to developing countries”,

Recalling also General Assembly resolution 42/186 of 11 December 1987 on the Environmental Perspective to the Year 2000 and Beyond and resolution 42/187 of 11 December 1987 on the report of the World Commission on Environment and Development,

Taking note of the report of the Secretary-General on the question of the convening of a United Nations conference on environment and development;\(^2\)

Mindful of the views expressed by Governments in the plenary debate held at its forty-fourth session on the convening of a United Nations conference on environment and development,

Recalling the declaration of the United Nations Conference on the Human Environment,

Deeply concerned by the continuing deterioration of the state of the environment and the serious degradation of the global life-support systems, as well as by trends that, if allowed to continue, could disrupt the global ecological balance, jeopardize the life-sustaining qualities of the

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Earth and lead to an ecological catastrophe, and recognizing that deci-
sive, urgent and global action is vital to protecting the ecological bal-
ance of the Earth,

Recognizing the importance for all countries of the protection and
enhancement of the environment,

Recognizing also that the global character of environmental
problems, including global change, depletion of the ozone layer, trans-
boundary air and water pollution, the contamination of the oceans and
seas and degradation of land resources, including drought and desertifi-
cation requires actions at all levels, including the global, regional and
national levels and involving the commitment and participation of all
countries,

Gravely concerned that the major cause of the continuing deterio-
rating of the global environment is the unsustainable pattern of produc-
tion and consumption, particularly in industrialized countries,

Stressing that poverty and environmental degradation are closely in-
terrelated and that environmental protection in developing countries
must, in this context, be viewed as an integral part of the development
process and cannot be considered in isolation from it,

Recognizing that measures to be undertaken at the international
level for the protection and enhancement of the environment must take
fully into account the current imbalances in global patterns of produc-
tion and consumption,

Affirming that the responsibility for containing, reducing, and elimi-
nating global environmental damage must be borne by the countries
causing such damage, must be in relation to the damage caused and
must be in accordance with their respective capabilities and respon-
sibilities,

Recognizing the environmental impact of material remnants of war
and the need for further international co-operation for their removal,

Stressing the importance for all countries to take effective measures
for the protection, restoration and enhancement of the environment in
accordance, *inter alia*, with their respective capabilities, while at the
same time acknowledging the efforts being made in all countries in this
regard, including international co-operation between developed and
developing countries,

Stressing the need for effective international co-operation in the area
of research, development and application of environmentally sound
technologies,

Conscious of the crucial role of science and technology in the field of
environmental protection and of the need of developing countries, in
particular, concerning favourable access to environmentally sound tech-
nologies, processes, equipment and related research and expertise through international co-operation designed to further global efforts for environmental protection, including the use of innovative and effective means,

Recognizing that new and additional financial resources will have to be channelled to developing countries in order to ensure their full participation in global efforts for environmental protection,

I

1. Decides to convene a United Nations Conference on Environment and Development of two weeks' duration and at the highest possible level of participation to coincide with World Environment Day, 5 June, in 1992;

2. Accepts with deep appreciation the generous offer of the Government of Brazil to host the Conference;

3. Affirms that the Conference should elaborate strategies and measures to halt and reverse the effects of environmental degradation in the context of strengthened national and international efforts to promote sustainable and environmentally sound development in all countries;

4. Affirms that the protection and enhancement of the environment are major issues that affect the well-being of peoples and economic development throughout the world;

5. Also affirms that the promotion of economic growth in developing countries is essential to address problems of environmental degradation;

6. Further affirms the importance of a supportive international economic environment that would result in sustained economic growth and development in all countries for protection and sound management of the environment;

7. Reaffirms that States have, in accordance with the Charter of the United Nations and the applicable principles of international law, the sovereign right to exploit their own resources pursuant to their environmental policies, and also reaffirms their responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction and the need for States to play their due role in preserving and protecting the global and regional environment in accordance with their capacities and specific responsibilities;

8. Affirms the responsibility of States for the damage to the environment and natural resources caused by activities within their jurisdiction or control through transboundary interference, in accordance with national legislation and applicable international law;
9. Notes that the largest part of the current emission of pollutants into the environment, including toxic and hazardous wastes, originates in developed countries, and therefore recognizes that those countries have the main responsibility for combating such pollution;

10. Stresses that large industrial enterprises, including transnational corporations, are frequently the repositories of scarce technical skills for the preservation and enhancement of the environment, conduct activities in sectors that have an impact on the environment and, to that extent, have specific responsibilities and that, in this context, efforts need to be encouraged and mobilized to protect and enhance the environment in all countries;

11. Reaffirms that the serious external indebtedness of developing countries, and other countries with serious debt-servicing problems, has to be addressed efficiently and urgently in order to enable those countries to contribute fully and in accordance with their capacities and responsibilities to global efforts to protect and enhance the environment;

12. Affirms that in the light of the above, the following environmental issues, which are not listed in any particular order of priority, are among those of major concern in maintaining the quality of the Earth’s environment and especially in achieving environmentally sound and sustainable development in all countries:

   (a) Protection of the atmosphere by combating climate change, depletion of the ozone layer and transboundary air pollution;

   (b) Protection of the quality and supply of freshwater resources;

   (c) Protection of the oceans and all kinds of seas, including enclosed and semi-enclosed seas, and of coastal areas and the protection, rational use and development of their living resources;

   (d) Protection and management of land resources by, inter alia, combating deforestation, desertification and drought;

   (e) Conservation of biological diversity;

   (f) Environmentally sound management of biotechnology;

   (g) Environmentally sound management of wastes, particularly hazardous wastes, and of toxic chemicals, as well as prevention of illegal international traffic in toxic and dangerous products and wastes;

   (h) Improvement of the living and working environment of the poor in urban slums and rural areas, through eradicating poverty, inter alia, by implementing integrated rural and urban development programmes, as well as taking other appropriate measures at all levels necessary to stem the degradation of the environment;

   (i) Protection of human health conditions and improvement of the quality of life;
13. **Emphasizes** the need for strengthening international co-operation for the management of the environment to ensure its protection and enhancement and the need to explore the issue of benefits derived from activities, including research and development, related to the protection and development of biological diversity;

14. **Reaffirms** the need to strengthen international co-operation, particularly between developed and developing countries, in research and development and the utilization of environmentally sound technologies;

15. **Decides** that the Conference, in addressing environmental issues in the developmental context, should have the following objectives:

(a) To examine the state of the environment and changes that have occurred since the 1972 United Nations Conference on the Human Environment and since the adoption of such international agreements as the Plan of Action to Combat Desertification, the Vienna Convention for the Protection of the Ozone Layer, adopted on 22 March 1985, and the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted on 16 September 1987, taking into account the actions taken by all countries and intergovernmental organizations to protect and enhance the environment;

(b) To identify strategies to be co-ordinated regionally and globally, as appropriate, for concerted action to deal with major environmental issues in the socio-economic development processes of all countries within a particular time-frame;

(c) To recommend measures to be taken at the national and international levels to protect and enhance the environment, taking into account the specific needs of developing countries, through the development and implementation of policies for sustainable and environmentally sound development with special emphasis on incorporating environmental concerns in the economic and social development process, and of various sectoral policies and through, *inter alia*, preventive action at the sources of environmental degradation, clearly identifying the sources of such degradation and appropriate remedial measures, in all countries;

(d) To promote the further development of international environmental law, taking into account the Declaration of the United Nations Conference on Human Environment, as well as the special needs and concerns of the developing countries, and to examine in this context the feasibility of elaborating general rights and obligations of States, as appropriate, in the field of the environment, also taking into account relevant existing international legal instruments;

(e) To examine ways and means further to improve co-operation in the field of protection and enhancement of the environment between
neighboring countries with a view to eliminating adverse environmental effects;

(f) To examine strategies for national and international action with a view to arriving at specific agreements and commitments by Governments for defined activities to deal with major environmental issues, in order to restore the global ecological balance and to prevent further deterioration of the environment, taking into account the fact that the largest part of the current emission of pollutants into the environment, including toxic and hazardous wastes, originates in developed countries, and therefore recognizing that those countries have the main responsibility for combating such pollution;

(g) To accord high priority to drought and desertification control and to consider all means necessary, including financial, scientific and technological resources, to halt and reverse the process of desertification with a view to preserving the ecological balance of the planet;

(h) To examine the relationship between environmental degradation and the structure of the international economic environment, with a view to ensuring a more integrated approach to environment-and-development problems in relevant international forums without introducing new forms of conditionality;

(i) To examine strategies for national and international action with a view to arriving at specific agreements and commitments by Governments and by intergovernmental organizations for defined activities to promote a supportive international economic environment that would result in sustained and environmentally sound development in all countries, with a view to combating poverty and improving the quality of life, and bearing in mind that the incorporation of environmental concerns and considerations in development planning and policies should not be used to introduce new forms of conditionality in aid or in development financing and should not serve as a pretext for creating unjustified barriers to trade;

(j) To identify ways and means to provide new and additional financial resources, particularly to developing countries, for environmentally sound development programmes and projects in accordance with national development objectives, priorities and plans and to consider ways of establishing effective monitoring of the implementation of the provision of such new and additional financial resources, particularly to developing countries, so as to enable the international community to take further appropriate action on the basis of accurate and reliable data;

(k) To identify ways and means to provide additional financial resources for measures directed towards solving major environmental problems of global concern and especially to support those countries, in
particular developing countries, for whom the implementation of such measures would entail a special or abnormal burden, in particular owing to their lack of financial resources, expertise or technical capacity;

(l) To consider various funding mechanisms, including voluntary ones, and to examine the possibility of a special international fund and other innovative approaches, with a view to ensuring the carrying out, on a favourable basis, of the most effective and expeditious transfer of environmentally sound technologies to developing countries;

(m) To examine with the view to recommending effective modalities for favourable access to, and transfer of, environmentally sound technologies, in particular to the developing countries, including on concessional and preferential terms, and for supporting all countries in their efforts to create and develop their endogenous technological capacities in scientific research and development, as well as in the acquisition of relevant information, and, in this context, to explore the concept of assured access, for developing countries to environmentally sound technologies in its relation to proprietary rights with a view to developing effective responses to the needs of developing countries in this area;

(n) To promote the development of human resources, particularly in developing countries, for the protection and enhancement of the environment;

(o) To recommend measures to Governments and the relevant bodies of the United Nations system, with a view to strengthening technical co-operation with the developing countries to enable them to develop and strengthen their capacity for identifying, analyzing, monitoring, managing or preventing environmental problems in accordance with their national development plans, objectives and priorities;

(p) To promote open and timely exchange of information on national environmental policies, situations and accidents;

(q) To review and examine the role of the United Nations system in dealing with the environment and possible ways of improving it;

(r) To promote the development or strengthening of appropriate institutions at the national, regional and global levels to address environmental matters in the context of the socio-economic development processes of all countries;

(s) To promote environmental education, especially of the younger generation, as well as other measures to increase awareness of the value of the environment;

(t) To promote international co-operation within the United Nations system in monitoring, assessing and anticipating environmental threats and in rendering assistance in cases of environmental emergency;

(u) To specify the respective responsibilities of and support to be
given by the organs, organizations and programmes of the United Nations system for the implementation of the conclusion of the Conference;

(v) To quantify the financial requirements for the successful implementation of Conference decisions and recommendations and to identify possible sources, including innovative ones, of additional resources;

(w) To assess the capacity of the United Nations system to assist in the prevention and settlement of disputes in the environmental sphere and to recommend measures in this field, while respecting existing bilateral and international agreements that provide for the settlement of such disputes;

II

1. **Decides** to establish a Preparatory Committee of the General Assembly open to all States Members of the United Nations or members of the specialized agencies, with the participation of observers in accordance with the established practice of the General Assembly;

2. **Decides** that the Preparatory Committee shall hold an organizational session of two weeks duration in March 1990 and a final session, both at United Nations Headquarters, in New York, and three additional substantive sessions, the first in Nairobi and the following two in Geneva, the timing and duration of which shall be determined by the Preparatory Committee at its organizational session;

3. **Decides** that the Preparatory Committee, at its organizational session, shall elect, with due regard to equitable geographic representation, the Chairman and other members of its bureau, comprising a substantial number of vice-chairmen and a rapporteur;

4. **Decides** that the host country of the Conference, Brazil, shall be **ex officio** a member of the Bureau;

5. **Requests** the Secretary-General of the United Nations, following the organizational session of the Preparatory Committee, to establish an appropriate **ad hoc** secretariat in Geneva, with a unit in New York and another unit in Nairobi, taking into account the decisions to be made by the Preparatory Committee regarding the preparatory process for the Conference and based on the principle of equitable geographic distribution;

6. **Decides** that the **ad hoc** secretariat will be headed by a Secretary-General of the Conference to be appointed by the Secretary-General of the United Nations;

7. **Requests** the Secretary-General of the United Nations to prepare a report for the organizational session of the Preparatory Committee
containing recommendations on an adequate preparatory process, taking into account the provisions of the present resolution and the views expressed by Governments in the plenary debate at the forty-fourth session of the General Assembly;

8. Decides that the Preparatory Committee shall:
(a) Draft the provisional agenda of the Conference, in accordance with the provisions of the present resolution;
(b) Adopt guidelines to enable States to take a harmonized approach in their preparations and reporting;
(c) Prepare draft decisions for the Conference and submit them to the Conference for consideration and adoption;

9. Requests the United Nations Environment Programme, as the main organ for the environment, and requests the other organs, organizations and programmes of the United Nations system, as well as other relevant intergovernmental organizations, to contribute fully to the preparations of the Conference on the basis of guidelines and requirements to be established by the Preparatory Committee;

10. Requests the Secretary-General of the United Nations to ensure the co-ordination of contributions from the United Nations system, through the Administrative Committee on Co-ordination;

11. Invites all States to take an active part in the preparations for the Conference, to prepare national reports, as appropriate, to be submitted to the Preparatory Committee in a timely manner and to promote international co-operation and broad-based national preparatory processes involving the scientific community, industry, trade unions and concerned non-governmental organizations;

12. Requests relevant non-governmental organizations in consultative status with the Economic and Social Council to contribute to the Conference, as appropriate;

13. Stresses the importance of holding regional conferences on environment and development with the full co-operation of the regional commissions, and recommends that the results of such regional conferences be introduced into the preparatory process for the 1992 Conference, bearing in mind that regional conferences should make important substantive contributions to the Conference;

14. Decides that the preparatory process and the Conference itself should be funded through the regular budget of the United Nations without adversely affecting other, ongoing activities and without prejudice to the provision of sources of extrabudgetary resources;

15. Decides to establish a voluntary fund for the purpose of supporting developing countries, in particular the least developed among them, in participating fully and effectively in the Conference and in its pre-
paratory process, and invites Governments to contribute to the fund;

16. Requests the Chairman of the Preparatory Committee to report to the General Assembly at its forty-fifth and forty-sixth sessions on the progress of the work of the Committee;

17. Decides to include in the provisional agenda of its forty-fifth and forty-sixth sessions an item entitled “United Nations Conference on Environment and Development.”
THE CAIRO COMPACT:
TOWARD A CONCERTED WORLD-WIDE RESPONSE
TO THE CLIMATE CRISIS

CAIRO, EGYPT
DECEMBER 21, 1989

The World Conference on Preparing for Climate Change, after five days of discussion in Cairo, Egypt, among the over 400 participants from six continents, adopted on December 21, 1989, the following statement of shared understanding, purpose, and resolve:

Humanity faces threats, real and growing, to the world we live in and even to life itself: global warming and the depletion of the ozone layer. The scale and the magnitude of these problems do not lend themselves to treatment issue by issue or by one nation or even a group of nations, acting alone. All nations - North and South, East and West - will have to cooperate on an unprecedented scale. They will have to make difficult commitments without delay to address this crisis.

All nations, and the vulnerable segments of various populations, will be hit by climate change: by rises in sea level that jeopardize coastal areas, by changing weather patterns, by decreased availability of fresh water, by induced heat stress, by increased ultraviolet radiation, and by the spread of pests and disease. All this will devastate food and agricultural production and adversely affect human health, welfare and cultural heritage. To date, the emissions that contribute to these problems have come primarily from industrialized nations, but projections of population growth, land use, and energy consumption indicate that emissions from industrializing countries are likely to increase rapidly.

The capacity of poorer nations to adapt to coming climate change, and minimize their own contributions to it, is sharply constrained by their limited resources, by their debt problems, and by their need to develop their economies on a sustainable and more equitable basis. Affluent nations, in recognition that climate change is a grave problem that humanity shares and has to solve in concert, need to make available to poorer nations significant additional financial and technological resources. We welcome the easing of international tensions and urge that part of the resources now used for military security to be deployed in the pursuit of environmental security instead.

The challenge posed by climate change cannot be met by national governments alone. They need to be joined, and supported, in their efforts by multilateral organizations, the industrial, business and financial community, scientific and educational institutions, foundations, en-
environmental groups, and concerned people everywhere, with a special emphasis on the role of women and youth. The participants in the Cairo conference, drawn from all of these groups, urge that actions be taken - and taken now - to reduce, and blunt, the impacts of climate change. These actions should not await the resolution of remaining scientific uncertainties; the situation demands a global insurance policy to protect our future.

Here are the items that should be at the top of the world's agenda:

- A framework climate convention should be completed at the earliest possible date, but in any case before the 1992 United Nations conference on Environment and Development. It should include as much as can be negotiated within this time frame. The convention should build on concepts already agreed to in principle, including those embodied in the Noordwijk Declaration on Climate Change of November 1989, and relevant U.N. General Assembly resolutions in its current session. The convention should, inter alia, establish general targets for reduction in greenhouse gas emissions, and for reforestation, and should promote energy efficiency. These measures help deal with climate change, and themselves produce other economic and environmental benefits.

- Work should also be initiated on protocols that would contain more specific commitments.

- To ensure success in these negotiations, governments should give strong support to the vital work of the Intergovernmental Panel on Climate Change. Urgent measures should be undertaken to ensure wider participation by developing countries.

- While participating in the multilateral processes toward the convention, nations should start immediately to undertake measures on their own, or on a regional basis, to reduce greenhouse gas emissions and to promote reforestation. These measures could later be taken into account in determining international treaty obligations.

- Affluent nations should develop, bilaterally and multilaterally, funding mechanisms for the transfer of additional financial and technological resources to poorer nations to enable them to restrain greenhouse gas emissions and adapt to climate change.

- The United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) should be strengthened and given more resources. Other relevant United Nations bodies also need more support.

- The ongoing international process for protection of the stratospheric ozone layer should be strengthened through participation by all nations in the Montreal Protocol; agreement on an early phase-out of
substances that deplete the ozone layer; and industry-government collaboration on the development of alternative technologies, and on arrangements to transfer ozone-safe technologies to countries in need.

o Historically unprecedented population growth in many areas of the world is a driving force behind the rise of greenhouse emissions. Governments, international agencies, and non-governmental organizations should provide significantly increased assistance in family planning, education, and maternal and child health, in a major effort to reduce population growth rates.

o In addition to adopting programs to curb deforestation, nations should launch large-scale reforestation efforts.

o Government agencies and agricultural research institutions should launch intensive efforts to evaluate and improve certain agricultural practices that contribute significantly to emissions of methane and other greenhouse gases.

o Governments and other energy suppliers should invest in those resources that provide energy at least financial and environmental cost.

o Major energy savings should be achieved through more efficient industrial processes, mass transport, more efficient vehicles, and better urban planning and building design.

o Strong emphasis should be placed on development and use of new and renewable sources of energy. Such alternatives are universally desirable, but are especially needed in many African nations, where the possibility of reductions in availability of water would reduce the amount of biomass, which is their main source of energy.

o Water management schemes, including irrigation and hydroelectric projects, should be designed to take into account the possible impacts of prospective climate change.

o The resilience of agriculture to climate change should be increased through greater diversity of farming systems (e.g., mixed crops and agroforestry); improved plant breeding; and long-term adjustments of agricultural infrastructure (e.g., irrigation systems, terracing, and other methods of preventing soil erosion).

o All coastal and island governments should ensure that prospective sea level rise and related climate changes are taken into account in long-range planning, in particular in decisions about proposed coastal development and settlement.

o Climate changes are likely to cause major displacements of human population. Work is urgently necessary to consider that national and international implications of environmental refugees and to set in place sufficient means for coping with the problem. We invite the United Nations High Commissioner for Refugees to consider preparing a report
on this subject.

- Nations should consider establishing World Cultural Zones to safeguard priceless elements of mankind's cultural heritage — historically significant buildings and other antiquities — which are being damaged by atmospheric pollution. The Nile Valley in Egypt, which is home to many historically unique structures, would be an appropriate area in which to establish the first such zone. In addition, research programs should be initiated to monitor localized climate changes that may imperil antiquities and to detect climate-induced damage in its incipiency.

- International scientific and technological cooperation, research and training of scientists should be strengthened, with particular emphasis on monitoring greenhouse gas concentrations, regional climate modeling, strengthened national climate programs, health effects, alternative energy technologies, adaptation strategies, marine resources, agriculture, and forests.

- Governments and intergovernmental organizations should work with non-governmental organizations, citizen groups, women's organizations and private industry, business and financial institutions to increase public understanding of climate change and its implications, and to involve them in the implementation of programs dealing with the problem.

- The actions of individuals can make a critical difference, through their way of life, their consumption patterns, and their participation in the processes of decision-making. Individuals should contribute their share of the costs of correcting the damages they inflict on the atmosphere.

In conclusion, we underline that we have joined in this Cairo Compact out of a real sense of urgency. For the sake of our planet and the lives of our children and generations to come, we must act now.

We are grateful to the government of Egypt for jointly convening, with UNEP and the Climate Institute, this conference, and for the participation of many of its most senior officials. It is fitting that this country, with its extraordinary sense of history, is so keen to preserve its past and safeguard its future. That is wisdom borne of experience; we hope that other countries will take notice, and will join with Egypt, and with those of us who met here, in common cause.