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INTERGOVERNMENTAL NEGOTIATING COMMITTEE
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PREPARATION OF A FRAMEWORK CONVENTION ON CLIMATE CHANGE

Set of informal papers
provided by delegations, related to the preparation
of a framework convention on climate change

Note by the secretariat

Addendum 10

This addendum contains material from Australia, Austria, Federated States of Micronesia and the United Kingdom of Great Britain and Northern Ireland.

List of informal papers

26. AUSTRALIA: Possible Draft Article for an Implementation/Compliance Mechanism in the Climate Change Convention (revised text of paper no. 1 sent with letter of 15 July 1991).
27. AUSTRIA: proposal for elements to be included in a Framework Convention on Climate Change (sent with letter of 19 July 1991).
28. MICRONESIA: Informal paper (sent with letter of 15 July 1991).
29. UNITED KINGDOM: Submission of material for the work of INC Working Group II: draft Annexes a Scientific Observation and Information Exchange.

PAPER NO. 26: AUSTRALIA

Explanatory note

At some informal discussions during the second session held with a group of lawyers from English speaking jurisdictions, it was noted that countries which had submitted proposals for implementation/compliance mechanisms should pay careful attention to the terminology used, as certain terms could be susceptible of different interpretations in other languages compared to their meaning in English. It was noted in this context that the term "monitoring" could be translated as "vigilance" in Spanish, and that in the Russian context, it could have the meaning of "surveillance".

For these reasons, the Australian draft article and accompanying paper (which were tabled at the second session in document A/AC.237/Misc.1/Add.1) have been amended to replace the words "monitoring" or "monitor" where they occur with "assess" or "assessing". The word "implementation" has also been added to the word "compliance" where it appears before "mechanism", on the basis that the use of both terms together more accurately reflects the approach that implementation of obligations is a continuous process by which countries achieve compliance with their obligations. This is consistent with the view of Australia's proposed mechanism as an ongoing process capable of assessing the state of implementation of countries' obligations under the convention at different times.

* * * *

Possible implementation/compliance mechanism for inclusion in a framework convention on climate change

An international response to climate change will not be effective unless the necessary measures are implemented globally. Therefore any Climate Change Convention and Protocols will need to contain sufficient incentive for countries to become a party to the Convention and thereafter to comply with the obligations under the Convention. These incentives and obligations should be integrated with a mechanism, the primary goal of which would be the early identification of problems or potential problems and the development of procedures for the State concerned either to eliminate the problem itself or be assisted in doing so.

Australia is of the view that such an implementation or compliance mechanism is essential to the success of the Convention and Protocols in combating climate change. The mechanism need not be overly adversarial or judicial in nature particularly if coupled with more positive inducements which might flow to a country which gives effect to the Convention.

The scale of the task of identifying problems in implementation of the Convention is large. The real difficulty is to devise a suitable mechanism which deals with not only with the more obvious problems but also with those which might arise from minor but incremental activities. Obviously a supra-national mechanism capable of assessing activities of this nature would, by itself, be prohibitively expensive and administratively impracticable. This means that substantial reliance will have to be placed on national institutions. Therefore one of the major functions of an implementation/compliance mechanism under the Convention will be to ensure that national mechanisms are themselves adequate to monitor implementation of internationally-agreed standards locally.

The attached text takes account of the factors mentioned above. Under the text a State Party would be required to designate a national body to assess implementation of the Convention/Protocols within the territory of that Party. These State bodies would report periodically and directly to an Implementation Committee established under the Convention. This expert body would examine State report and might, in appropriate cases, make a recommendations to the States concerned. It would also be able to consider information obtained from other sources such as intergovernmental organisations and NGOs. It would not have any power to issue binding directives, but would report its assessments and findings to the meetings of the States Parties to the Convention.

The attached text was prepared before the meeting in April 1991 of the Ad Hoc Working Group of Experts to elaborate further procedures on non-compliance under the Montreal Protocol on Substances that Deplete the Ozone Layer. The work still proceeding on compliance in that forum will obviously be relevant to the question of compliance procedures under a climate change convention.

The attached mechanism would, in Australia's view, when combined with the obligations and incentives under the Convention promote the primary objective of the Convention - that is to effectively reduce the threat of enhanced greenhouse warming and other human-induced climate change. Given its primary reliance on implementation/compliance assessment by individual States Parties, it also takes due account of the national sovereignty of each of those States.

Possible draft article for an implementation/compliance mechanism in the climate change convention

- (A) Each State Party shall nominate a body within that State which shall be responsible for assessing compliance with this Convention and its Protocols.
- (B) An International Implementation Committee shall be established. It shall consist of [] experts on technical matters related to climate change who shall be elected in a personal capacity. The Committee shall be serviced by a secretariat.
- (C) The State Party body shall:
 - (i) assess compliance with this Convention and the Protocols to which it is also Party, within the territory of the State Party;
 - (ii) periodically report [directly] to the International Implementation Committee on
 - (a) measures (both legal and administrative) taken by the State Party to implement this Convention and its Protocols;
 - (b) the adequacy of, and adherence to those measures; and
 - (c) problems encountered in the implementation of the Convention and Protocols.
 - (iii) assist the Implementation Committee in carrying out its functions, including by supplying any relevant information requested and by facilitating visits by International Implementation Committee missions as provided for in sub-paragraph D (vi) below.
- (D) The International Implementation Committee shall be responsible for investigating and reporting on implementation of the Convention and Protocols by all States Parties, and for drawing the attention of all States Parties to any discrepancy between their obligations under the Convention (and any Protocol to this Convention to which they are Party) and its laws and practices. In carrying out these functions the International Implementation Committee shall:
 - (i) examine and assess the periodic and other reports submitted by State Party bodies;
 - (ii) investigate complaints relating to implementation by a State Party received from any other Party;
 - (iii) consider information provided by non-governmental organisations having observer status under this Convention;

- (iv) request the Party which is the object of the complaint to respond to the complaints made under sub-paragraph (ii) above;
 - (v) request further information or clarification on responses received under sub-paragraph (iv) above, on reports submitted by State Party bodies or by States Parties themselves, and in relation to information provided to the Committee by non-governmental organisation observers;
 - (vi) with the consent of the Party concerned, send a visiting mission if, after receiving the information or clarification referred to in sub-paragraphs (iv) and (v) above, the Committee is of the view that such enquiries in the territory of the Party concerned are necessary;
 - (vii) report its assessments and findings to the State Party concerned, drawing its attention to any discrepancy between that State's obligations under the Convention and Protocols and its laws and practices;
 - (viii) report its assessments and findings, including the information and observations provided by States Parties, to the next ordinary meeting of States Parties for their consideration and further action, including assistance to the State Party concerned, as appropriate.
- (E) The foregoing shall be without prejudice to arrangements which may exist between States Parties for the settlement of disputes arising out of this Convention and its Protocols, including possible recourse to the International Court of Justice.

PAPER NO. 27: AUSTRIA

Selected Guiding Principles:

Precautionary principle:

Policies must be based on the precautionary principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Polluter Pays Principle:

Those who are responsible for causing damage to the environment bear the responsibility for rectifying that damage.

Common concern of mankind - common but differentiated responsibility:

All countries bear a common but differentiated responsibility to take action to protect the global climate, recognizing the different circumstances of specific countries and groups of countries, including in particular the situation of developing countries, countries which are highly vulnerable to the effects of climate change, the problems of economies in transition and the specific responsibility of industrialized countries.

Further principles:

Equity, universality, sustainable development...

Objectives and Commitments:

Long term global objective:

The long term global objective must be the stabilization of greenhouse gas concentrations in the atmosphere at a level which minimises risks to ecosystems, ecological processes, and climatic conditions essential for the functioning of the biosphere and which will ensure sustainable development.

The convention should provide a framework, which will allow to address over time all greenhouse gases not controlled by the Montreal Protocol, all sources and sinks in the most comprehensive manner. It should allow a stepwise approach to a comprehensive solution by providing a framework for setting priorities, taking into account inter alia present knowledge, emission levels, options available to control greenhouse gas emissions and the specific circumstances of certain regions and countries, without failing specific short term commitments.

Commitments:

Bearing in mind that in the near future a dramatic cut in emission levels will be necessary, the framework convention must contain clear commitments on limitation of greenhouse gas emissions, in particular CO₂, and on specific policy measures to initiate immediate action worldwide to control, limit and reduce greenhouse gas emissions.

All parties to the convention should commit themselves to the formulation and implementation of national programmes and strategies with regard to the limitation of greenhouse gas emissions, conservation and enhancement of sinks and on strategies to mitigate adverse effects of climate change. These programme should include information about current and

projected emission levels, the current and projected status of forests and other carbon sinks and about measures - planned or in force - to combat global warming. All countries should be obliged to report on the national implementation of these programmes in accordance with agreed procedures on review and compliance.

Focus should be given in this context inter alia on

- development and application of the best available environmentally sound technology
- energy conservation and rational use of energy e.g. by definition of minimum energy efficiency standards for the energy supply sector and household appliances and definition of minimum fuel efficiency standards for motor vehicles
- development and use of renewable energy sources
- reduction of subsidies for activities inter alia in the energy domain, which contribute to global warming
- development of economic instruments
- control and reduction of methane emissions primarily from natural gas leakages, landfills, coal mining, industrial processes
- limitation of CFC substitutes with global warming potential which are not controlled by the Montreal Protocol
- provisions for environmental impact assessment
- and on obligations to conserve natural carbon reservoirs and sinks and to develop integrated strategies to increase sinks

Specific commitments and targets for the limitation of greenhouse gases not controlled by the Montreal Protocol at levels and time tables to be agreed upon, depending on the certain situation of different countries should be developed immediately.

Specific commitments and targets in a first step:

Industrialized countries should commit themselves to stabilize and reduce emissions of CO₂ and other greenhouse gases not controlled by the Montreal Protocol as soon as possible. Primarily specific commitments on the limitation of CO₂ emissions should be formulated, taking into account that current emission levels are best known and options and policy tools to control CO₂ emissions are available.

As a first step a binding commitment of industrialized countries - and other countries which are in a position to do so - to stabilize CO₂ emissions in general at 1990 levels as soon as possible, at the latest by the year 2000 should be formulated as a short term target in the context of the Framework Convention on Climate Change and should be part of the package to be adopted in Rio. In order to allow rapid implementation, specific commitments should preferably be formulated in protocols.

Commitments on transfer of technology and additional financial resources to developing countries will be necessary to meet the obligations under the Framework Convention on Climate Change and related legal instruments.

As regards the items of the International Negotiating Committee for a Framework Convention on Climate Change to be dealt with in Working Group II according to the mandate given to it by the Plenary, Austria should like to state her position as follows:

A Scientific Committee shall be established which shall continuously review all scientific and environmental data relevant for the implementation of the Convention. These data shall be collected by the competent national monitoring authorities and shall, on a mandatory basis, be communicated to the Secretariat which shall immediately forward them to the Scientific Committee as well as to all Contracting Parties. The Scientific Committee shall give advisory opinions to the Compliance Committee if the latter so requests. Special attention ought to be paid to the development and enhancement of the scientific, technological and institutional potential of developing countries.

A general obligation of all Contracting Parties to co-operate in the fields of science, monitoring and information shall be an integral part of the future Convention.

A Compliance Committee shall be established by the future Convention. It shall consist of an appropriate, but limited number of members and shall adequately reflect the geographical and political spectrum of the Contracting Parties. The Conference of the Parties shall elect the Compliance Committee for a fixed term.

Every Contracting Party may give notice to the Compliance Committee of the fact that another Contracting Party does not comply with its obligations incumbent upon it under the Convention. In such a case, the Contracting Parties concerned shall have the right to appoint an additional member of the Compliance Committee each for the time of the proceedings if they are not yet represented in the Compliance Committee. The Compliance Committee shall conduct a non-adversarial procedure and shall, drawing upon an implementation report submitted by

the Contracting Party concerned and on the best scientific and legal advice available, report to the Conference of the Contracting Parties as to the question of compliance and as to what measures should be taken in order to remedy the situation. The Compliance Committee may request the Scientific Committee to give an advisory opinion on scientific questions. The Conference of the Contracting Parties may find it appropriate to suggest additional measures to those envisaged by the report of the Compliance Committee, such as sending, with the consent of the Contracting Party concerned, exploratory expert missions in the territory of that Contracting Party.

Should a dispute arise between Contracting Parties concerning the application or interpretation of the Convention they shall seek to settle it by any peaceful means they agree upon. If they have not been able to agree on a dispute settlement procedure or to settle the dispute within a certain period of time, a mandatory dispute settlement procedure shall take effect as provided for in the Convention or an Annex thereto. The Contracting Parties should be given a choice, upon their ratification, approval and acceptance of or their accession to the Convention, between an arbitral tribunal or the International Court of Justice.

With respect to the question of the entry into force, Austria supports the model that a certain number of ratifications should be the relevant criterion and not a certain percentage of global emissions. Reservations to the Convention should not be allowed.

As to mechanisms for finance and technology transfer, Austria supports the concept of partnership and co-operation aiming at the development of specific technologies for specific problems. Technical assistance should be an integral part of all efforts in this field in order to enhance education, training and institution building in the developing countries. The necessary financial resources related thereto should be administered by already existing international institutions and

mechanisms, as for instance the Global Environmental Facility (GEF) and the Montreal Protocol Fund.



INFORMAL PAPER SUBMITTED BY MICRONESIA

The Federated States of Micronesia (FSM) has concluded from discussions in Working Groups I and II at Geneva that while the point focused upon here may be encompassed inferentially in some of the various drafts, it deserves specific treatment in written form for subsequent consideration. The following introduction provides a contextual frame of reference.

The land area of the Federated States of Micronesia (FSM) consists of over six hundred small, low-lying islands which, if combined, would be approximately the size of the U.S. State of Rhode Island. Yet, the ocean area within the FSM's EEZ approaches the size of the entire continental United States. Furthermore, the ocean is virtually the only substantial natural resource on which the FSM can pin its hopes for future development. In this light, when one visualizes the FSM as a country one must think not just of small islands widely dispersed in empty spaces, but of the region in its entirety. The FSM is indeed a small-island state, but it is even more an oceanic state.

The INC should take account of the fact that much the same can be said of a number of other island countries, primarily in the Pacific, Indian Ocean and Caribbean regions. Thus, without denigrating the threat to low-lying land areas posed by sea-level rise, the inhabitants of the FSM and these countries must also be seriously concerned about the effects of rising ocean temperatures on the life and the mobility of the living resources of the sea, as well as on the condition and renewability of its non-living resources. Calling on the growing lexicon of terms relevant to the climate change discussion, one quickly translates the particular concerns expressed here into the principles of biodiversity and sustainable development.

The above is not to suggest that the rest of the world can afford a lesser level of concern for the oceans, for indeed it cannot. But the small-island oceanic states, in addressing their more immediate concerns in this regard, hope to quicken the sensitivity of the world community to problems associated with ocean warming beyond sea level rise, which, as well, have threatening implications for all.

This paper cannot be a brief for the certainty or likelihood of any particular effect on the ocean or marine resources due to temperature rise, because in fact there are few subjects connected with climate change that are more broad, and more in need of intensive scientific analysis. Worthy of note even now, however, is the paragraph which appears on Page 8 of the IPCC First Assessment Report, Volume I, dated August, 1990:

"Impacts on the global oceans will include changes in the heat balance, shifts in ocean circulation which will affect the capacity of the ocean to absorb heat and

CO2 and changes in upwelling zones associated with fisheries. Effects will vary by geographic zones, with changes in habitats, a decrease in biological diversity and shifts in marine organisms and productive zones, including commercially important species. Such regional shifts in fisheries will have major socioeconomic impacts."(emphasis added)

For small-island, oceanic peoples, the threat to their survivability, not to mention development, posed by bleached and dying coral reefs and by the disappearance of fish and other marine species on which they have been traditionally reliant, becomes compelling even at the gates of the realm of possibility. Unlike even the sea-level rise threat, against which adaptation or defensive strategies at least can be conceived, there can be no strategy other than, perhaps, migration, to mitigate the loss of a country's only resource base.

Small-island, oceanic countries like the FSM are typically remote, far from the world's markets and transportation points, and have a relatively small, unskilled labor force. Possibilities for switching from marine-based to land-based industry for subsistence and economic growth are limited-to-nonexistent. The Precautionary Principle thus takes on a special meaning for the FSM, and the term, "no regrets," a special irony.

Commitments

The Convention must incorporate specific commitments based on the principles of Differentiated Responsibility and Equity, aimed at stabilizing and quickly reducing the rate of global warming attributable to greenhouse gas emissions.

The Precautionary Principle must be conscientiously applied to the undertaking of and compliance with these commitments. The "Pledge and Review" approach has a tentative character which is at odds with the Precautionary Principle.

Research into the oceanic effects referred to in the IPCC First Assessment Report as quoted above must be accorded a priority at least equal to that being given to sea-level rise, with funding and scientific resources made available to reflect that commitment. Thus far, such research seems to have been relegated almost to footnote status in the IPCC and other efforts.

Mechanisms

The question of mechanisms here probably has more to do with financial, than legal or administrative structures. Impressive bodies of expertise are already engaged, such as the Intergovernmental Oceanographic Commission, UNEP and others. First, they should be

instructed through the Convention to place increased focus on the problem of oceanic effects, and second, they must be provided with funds adequate to the task.

As an analog to the "Green Fund" proposed at paragraph 23 of the Beijing Ministerial Declaration on Environment and Development dated 19 June 1991, a "Blue Fund" should be established, perhaps as a component of the widely discussed Climate Fund, pursuant to the Framework Convention, to provide adequate and additional financial assistance to developing countries who anticipate adverse effects on their oceanic environments so that such effects can be, to the extent possible, minimized or eliminated through the transfer of environmentally sound technologies and through scientific and technological research. Even if the effects of ocean warming cannot be fully averted, the Fund should be applied to mitigate or compensate for those effects.

Pohnpei, Federated States of Micronesia
12 July, 1991

PAPER NO. 29: UNITED KINGDOM

These draft Annexes on Scientific Observation and Information Exchange have been referred to in discussion in Working Group II as relevant to draft article 3 on scientific co-operation.

DRAFT ANNEX I

RESEARCH AND SYSTEMATIC OBSERVATION

1. The Parties to the Convention recognise that the major scientific issues are:
 - (a) Modification of the composition of the Earth's atmosphere which alters its radiative properties leading to changes in the atmospheric, oceanic and biological processes that affect weather and climate;
 - b) Impacts of changes in weather and climate on physical, chemical, biological, geological, social and economic processes.
2. The Parties to the Convention, in accordance with Article [3], shall cooperate in conducting research and systematic observations and in formulating recommendations for future research and observation in such areas as:
 - a) Research into the physical, chemical and biological processes that may affect the global climate
 - (i) *Comprehensive theoretical models; further development of climate models which integrate the effects of changing atmospheric radiative properties with changes in atmospheric, oceanic and biological processes; improving the representation within models of processes affecting climate; validation of models against current observations, past records and transient climate parameters; increasing the spacial resolution of models to aid regional predictions; evaluating the predictability of climate*
 - (ii) *Greenhouse gases, aerosols and their precursors: improved quantitative estimates of their radiative properties; identification and quantification of anthropogenic and natural sources and sinks; establishing global and national inventories of sources and sinks; improving understanding of the cycles of greenhouse gases, aerosols and precursors; developing 3-dimensional modelling of atmospheric distribution; establishing current atmospheric abundance and trends;*

- (iii) *Atmospheric radiation, heat and water vapour*: research on the hydrological cycle, the atmospheric distribution of water vapour, precipitation and clouds; evaluating the radiative properties of clouds; evaluating solar radiative input, variations with time and atmospheric transmission; evaluation and mapping of surface albedo;
 - (iv) *Oceanic systems*: experiments to establish the mechanism governing ocean dynamics, the transport of heat and CO₂, and exchanges with the atmosphere; research on the role of ocean biological systems in heat and CO₂ cycles, their natural variability and anthropogenic influences upon them; improving understanding of the factors affecting sea-level changes;
 - (v) *Terrestrial systems*: studies of the role of terrestrial geophysical and biological systems in the hydrological, energy and greenhouse gas cycles and of anthropogenic and climate change influences upon them;
 - (vi) *Cryosphere*: studies of the mass balance of the polar ice sheets and glaciers, and their response to climate change; understanding the role of sea ice in the energy cycles between ocean and atmosphere; evaluation of the processes of snow accumulation, redistribution, seasonal melting and the dynamics of permafrost systems.
- (b) Research on the Impacts of Climate Change
- (i) *Natural, terrestrial, aquatic and coastal ecosystems and resources*: determining the sensitivity of ecosystems to changes in temperature, hydrological balance, atmospheric chemistry, groundwater and sea level; assessments on a regional basis of ecosystem changes resulting from climate factors, and the impact of changed competitive factors between species, pests and predators at different rates and magnitudes of climate change;
 - (ii) *Agriculture, fisheries and forestry*: studies of crop-viability under a changing climate; regional assessments of changes in yield susceptibility to pests and diseases, climatic extremes, economic challenges from alternative crops; impacts on abundance and distribution of fishery

resources; socio-economic impacts of changed transport, storage, processing and marketing conditions;

- (iii) *Water resources*: examine on a regional basis effects of changes in the hydrological cycle on provision of drinking, irrigation and industrial water supplies; impact on inland navigation;
- (iv) *Coastal environment*: regional studies of the geological, ecological and human settlement impacts of altered sea levels;
- (v) *Social systems and economics*: investigations of the effects of climate change on disease vectors, viability of pathogens, nutrition and other factors relevant to human health; the effect of changes in climate, weather and sea level on the viability and quality of human settlements, the built environment and all other aspects contributing to the standard of living; economic consequences for societies significantly affected by climate, weather or sea level change.

(c) Research on mitigation and adaptation

- (i) *Energy, industrial, commercial, domestic and transport sources of greenhouse gases, aerosols and precursors*: evaluation of technology options for low emission, high efficiency and alternative technologies; study of applicability, cost and social factors affecting use of technology options;
- (ii) *Forestry and agriculture*: Evaluation of net emission or sink factors for forestry and agricultural practices; identification of methods for reducing emissions and increasing sinks; study of applicability, cost and social factors affecting use of lower emission or enhanced sink practices;
- (iii) *Adaptation*: Improving understanding of opportunities for adaptation in natural and managed systems; identification of adaptation possibilities and limits to adaptation; evaluation of adaptation techniques and practices; identification of socio-economic factors affecting implementation of technologies and practices for mitigation.

(d) Systematic observation on:

- (i) Atmospheric distribution of GHGs, aerosols and precursors;
- (ii) Clouds by type, amount, altitude, composition and optical properties;
- (iii) Precipitation and water vapour;
- (iv) Atmospheric temperature, dynamics and radiative fields;
- (v) Fluxes of GHGs, GHG precursors and energy between the atmosphere and terrestrial and aquatic systems;
- (vi) Ecosystem type (natural and managed, terrestrial and aquatic), extent, state and productivity;
- (vii) Physical land surface characteristics, including albedo, roughness, soil moisture, snow, ice, permafrost, glaciers, temperature;
- (viii) Ocean surface and sub-surface characteristics, including roughness, height, circulation, chemical composition, biological activity, colour and temperature;
- (ix) Distribution and extent of human impacts including urban areas, type and variability of agricultural and forestry practices, control of hydrological cycle.

3. The Parties to the Convention shall cooperate, taking into account the particular needs of the developing countries, in promoting the appropriate scientific and technical training required to participate in the research and systematic observations outlined in this annex.
4. The following chemical substances of natural and anthropogenic origin, not listed in order of priority, are known to have the potential to modify the radiative balance of the atmosphere:

(a) Hydrogen species

(i) Water (H₂O)

Water, the source of which is predominantly natural, is the single most important greenhouse gas. The abundance of tropospheric water vapour is largely controlled by the physical processes that control the earth's climate while local sources of water vapour in the stratosphere include the oxidation of methane and, to a lesser extent, of hydrogen.

(b) Carbon species

(i) Carbon dioxide (CO₂)

While there are large natural oceanic and terrestrial sources and sinks of carbon dioxide, which is a key greenhouse gas, its atmospheric abundance is being significantly affected by anthropogenic sources.

(ii) Carbon monoxide (CO)

Carbon monoxide has significant natural and anthropogenic sources, and is thought to play a major role in controlling the atmospheric abundance of tropospheric ozone, which is a greenhouse gas, and the hydroxyl radical, which controls the atmospheric abundances of greenhouse gases including methane and greenhouse gas precursors such as non-methane hydrocarbons.

(iii) Methane (CH₄)

Methane has significant natural and anthropogenic sources. It is a greenhouse gas and also affects the atmospheric abundances of stratospheric water vapour and tropospheric ozone both of which are also greenhouse gases.

(iv) Non-methane hydrocarbon species

Non-methane hydrocarbons covers a large number of chemical substances with both natural and anthropogenic sources which are thought to have a greenhouse gas effect primarily by their impact on the abundance of tropospheric ozone.

(c) Nitrogen species

(i) Nitrous oxide (N_2O)

The dominant sources of nitrous oxide, which is a greenhouse gas, are natural but anthropogenic contributions are becoming more important.

(ii) Oxides of nitrogen (NO_x)

Ground-level and aircraft sources of NO_x play a major direct role in tropospheric chemical processes which affect tropospheric ozone abundance.

(d) Halogenated species

(i) Fully halogenated alkanes, for example, CCl_4 , $CFCI_3$ (CFC-11), CF_2Cl_2 (CFC-12), $C_2F_3Cl_3$ (CFC-113), $C_2F_4Cl_2$ (CFC-114) and C_2F_5Cl (CFC-115).

Fully halogenated alkanes are anthropogenic greenhouse gases, which are also responsible for the reduction of stratospheric ozone which in itself will affect atmospheric radiative forcing.

(ii) Partially halogenated alkanes for example, CH_3Cl , CH_2Cl_2 (HCFC-22), CH_3CCl_3 , [to follow a list of HCFCs, HFCs.] While the sources of CH_3Cl are natural, the other partially halogenated alkanes are anthropogenic in origin. All of these gases are greenhouse gases.

(e) Sulphur species

(i) Sulphur dioxide (SO_2)

(ii) Dimethyl sulphide ($(CH_3)_2S$)

(iii) Carbonyl sulphide (COS) and carbonyl disulphide (CS_2)

ANNEX II INFORMATION EXCHANGE

1. The Parties to the convention recognise that the collection and sharing of information is an important means of implementing the objectives of this convention and of ensuring that actions that may be taken are appropriate and equitable. Therefore, Parties shall exchange scientific, technical, socio-economic, business, commercial and legal information.

2. The Parties to the convention, in deciding what information is to be collected and exchanged, should take into account the usefulness of the information and the cost of obtaining it. The Parties further recognise that cooperation under this annex has to be consistent with national laws, regulations and practices concerning patents, trade secrets, and the protection of confidential and proprietary information.

3. Scientific Information

This includes information on

- a) planned and ongoing research, both governmental and private to facilitate the coordination of research programmes so as to make the most effective use of available national and international resources;
- b) the emissions data needed for research;
- c) scientific results published in peer-reviewed literature on the understanding of the physics and chemistry of the earth's atmosphere and of its susceptibility to change;
- d) the assessment of research results and recommendations for future research.

4. Technical Information

This includes information on

- a) the availability, feasibility and costs of alternative technologies and agricultural and forestry practices to reduce emissions of and increase sequestration of greenhouse gases, and related planned and ongoing research;
- b) the limitations involved in using such alternative technologies and agricultural and forestry practices.

5. Legal Information

This includes information on

- a) national laws, administrative measures and legal research relevant to the objectives of this convention;
- b) international agreements, including bilateral agreements, relevant to the objectives of this convention;
- c) methods and terms of licensing and availability of patents relevant to alternative technologies and agricultural and forestry practices.