

10 April 2003

ENGLISH ONLY

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE

Eighteenth session

Bonn, 4–13 June 2003

Item 8 of the provisional agenda

### **COOPERATION WITH RELEVANT INTERNATIONAL ORGANIZATIONS**

#### **Relationship between efforts to protect the stratospheric ozone layer and efforts to safeguard the global climate system: issues relating to hydrofluorocarbons and perfluorocarbons**

##### **Submissions from the Intergovernmental Panel on Climate Change and the Technology and Economic Assessment Panel of the Montreal Protocol**

1. The Conference of the Parties, at its eighth session, invited the Intergovernmental Panel on Climate Change (IPCC) and, through the Meeting of the Parties to the Montreal Protocol, the Technology and Economic Panel (TEAP) of the Montreal Protocol, to develop a balanced scientific, technical and policy-relevant special report (FCCC/CP/2002/7/Add.1, para. 1) as outlined in the response of the IPCC and the TEAP to a request by the Subsidiary Body for Scientific and Technological Advice (SBSTA) (FCCC/SBSTA/2002/MISC.23).
2. The secretariat has received, from the IPCC, an extract of the draft report of the twentieth session of the IPCC containing the decision to continue work on the special report. The content and timetable for the preparation of the special report are included in an annex to the decision. The annex was prepared by the IPCC in close collaboration with the co-chairs of the TEAP of the Montreal Protocol. Furthermore, the secretariat has received, from the TEAP, the relevant decision taken by the Montreal Protocol Parties in November 2002 relating to the special report. In accordance with the procedure for miscellaneous documents, these decisions are attached and are reproduced\* in the language in which they were received and without formal editing.

---

\* These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

CONTENTS

	<u>Page</u>
1. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (Submission received 2 April 2003)	3
2. TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL OF THE MONTREAL PROTOCOL (Submission received 3 April 2003)	10

PAPER NO. 1: INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

**Extracted from the Draft Report of the Twentieth session of the IPCC**

**Special Report on “Safeguarding the ozone layer and the global climate system: issues related to hydrofluorocarbons and perfluorocarbons”**

**Decision 6**

**7.2.2** The Panel was supportive of the proposal of Mr. Bert Metz and decided that the interim Steering Committee of Messrs. Bert Metz, Ogunalde Davidson and Susan Solomon and three TEAP experts should continue to work on behalf of the IPCC in coordinating the preparation of a Special Report on “Safeguarding the ozone layer and the global climate system: issues related to hydrofluorocarbons and perfluorocarbons”. The content and timetable for the preparation of the Special Report is as given in the Annex to this Paragraph. Attached to the Annex are the Terms of Reference for the Steering Committee that is charged with overseeing this work.

ANNEX

**1. Content of the Special Report on Safeguarding the ozone layer and the global climate system: issues related to hydrofluorocarbons and perfluorocarbons**

Summary for Policy Makers

**General Introduction**

- Liability Disclaimer
- Requests from UNFCCC and Montreal Protocol in 2002 and its background
- Reference to earlier work of IPCC, TEAP, UNEP and other on this issue
- Directions for Use: where to find what in this Special Report

**Part A. Ozone depletion and the Climate system**

This part will contain a brief summary of relevant findings regarding the relation of ozone layer depletion and global warming based upon the TAR and UNEP/WMO 1998 and 2002 reports. It will be coordinated by WG I of IPCC.

**Chapter A. 1. Ozone and Climate: A Review of Interconnections.**

Short summary of relevant processes as well as key conclusions, drawing where appropriate from the UNEP/WMO Scientific Assessment of Ozone Depletion, 2002 and IPCC TAR, 2001, covering:

- Introduction: processes linking ozone chemistry to temperature/dynamics in various parts of the stratosphere (lower, upper, mid-latitude, polar); processes linking temperature/dynamics to radiative forcing agents in troposphere and stratosphere.
- Review of assessment conclusions regarding (i) effects of ozone depletion on climate change and (ii) effects of climate change on ozone depletion.

**Chapter A.2. Chemical and Radiative Effects of HFCs, PFCs, and Their Possible Replacements**

This part will include an assessment of toxicity, atmospheric chemistry effects (e.g., air quality) and potential build up of degradation products in the atmosphere, as well as build-up of the parent gases.

- Radiative properties (infrared absorption characteristics)
- Time series of available concentrations and relation with emission data
- Decomposition products (including TFA, toxicity),

- GWP updates and estimated radiative forcings for given scenarios (to be defined)
- Interface with air quality issues

## **Part. B: Options for ODS phaseout and reducing GHG emissions**

This part will cover relevant considerations in choosing among options to replace ozone-depleting substances. The choice among options involves a number of environmental, health, safety, availability and technical performance considerations in addition to consideration of direct and indirect greenhouse gas emissions. For each chemical application the Special Report will cover the relevant technical/scientific considerations, including:

- Technical information relevant to the evaluation, including cost, availability, health, environment and safety considerations, technical performance, energy and resource efficiency and all greenhouse gas emissions, using a systematic approach, such as the total equivalent warming impact (TEWI) and Life Cycle Climate Performance (LCCP), to be co-ordinated by IPCC WG III and TEAP.
- Technical options to reduce greenhouse gas emissions, e.g. through containment, recovery, recycling, destruction, the use of alternative fluids and not-in-kind technologies. Where appropriate, reference should be made to examples of relevant policies and measures. This part will be co-ordinated by IPCC WG III and TEAP. The industrial and consumer health/safety considerations will be co-ordinated by TEAP. The SR will have an appropriate liability disclaimer.

The following division in chapters and sub sections is chosen:

### **B. 1 Methodologies**

(This chapter provides a description of available methodologies to characterize or analyze technologies, enabling the user to evaluate and compare different options)

- Technical performance characteristics
- Characteristics in respect to health and safety
- Costing approaches
- Comparing energy efficiency
- Assessing climate and environmental impacts
  - Total equivalent warming impact (TEWI)
  - Lifecycle climate performance (LCCP)
  - Lifecycle assessment (LCA)
- Other systems based approaches
- Future developments

### **B.2 Sub-sectors, Practices and Technologies**

The chapters of this part are structured along the relevant sub-sectors with each an introductory and concluding chapter. The selection of the sectors and sub-sectors is based on the 1999 TEAP Task Force Report and Annex to chapter 3 of Working Group III of the IPCC Third Assessment Report, supplemented with information on new HFC, PFC applications as substitutes and alternatives to ozone-depleting substances controlled under the Montreal Protocol:

It is further proposed that the chapters on each sub-sector are structured in a similar manner, first listing and discussing *relevant practices* to reduce emissions of HFCs and PFCs and net global warming impact, and then listing, discussing and comparing *alternative technologies* that can be used in that sub-sector. An overview of each sector and technologies used will be given. Consumption and emission of HFCs and PFCs in each sector will be reviewed. The comparison of the practices and technologies should include lists and tables to provide a summarized overview.

## **B.2.1. Refrigeration, Air Conditioning and Heat Pumps**

- B.2.1.1 Mobile Air Conditioning
- B.2.1.2 Domestic Refrigeration
- B.2.1.3 Commercial Refrigeration
- B.2.1.4 Residential and Commercial Air Conditioning and Heating
- B.2.1.5 Food processing and Cold Storage
- B.2.1.6 Industrial Refrigeration
- B.2.1.7 Transport Refrigeration
- B.2.1.8 Miscellaneous

## **B. 2.2. Foams**

- B.2.2.1 Insulating<sup>1</sup> Foams in Appliances
- B.2.2.2 Insulating Foams in Residential Buildings
- B.2.2.3 Insulating Foams in Commercial Buildings
- B.2.2.4 Insulating Foams in Transportation
- B.2.2.5 Other Insulating Foams
- B.2.2.6 Non-Insulating Foams (Safety, packaging, etc.)
- B.2.2.7. Miscellaneous

## **B. 2.3. Solvents, Coatings, Adhesives**

- B.2.3.1 Solvents
- B.2.3.2 Coatings
- B.2.3.3 Adhesives
- B.2.3.4 Other

## **B. 2.4. Aerosol Products**

- 2.4.1 Cosmetic and Convenience Aerosol Products
- 2.4.2 Technical and Pharmaceutical Aerosol Products
- 2.4.3 MDIs for oral inhalation for the treatment of Asthma and Chronic Obstructive Pulmonary Diseases (COPD)
- 2.4.4 Other Aerosol Products

## **B. 2.5. Fire Protection**

- 2.5.1. Portable systems
- 2.5.2. Fixed systems

## **B. 2.6 Miscellaneous**

This part will address those fluorinated compounds that are directly related to the phase-out of Ozone Depleting Substances, but do not belong to the applications mentioned above for instance HFC –23 emissions coming from HCFC-22 production.

Furthermore, TEAP will provide an appropriate summary of a forthcoming report on HCFCs in Developing Countries.

---

<sup>1</sup> Both thermal and acoustic insulation will be taken into account.

Within each chapter B.2.1 - B.2.6, the description of the practices, technologies, and options to reduce GHG emissions will be given. The description should as far as reliable information is available and relevant - include the following elements in the indicated order:

**Relevant Practices** to reduce HFC and PFC emissions during a life cycle: production, process improvement in applications, improved containment, end-of-life recovery, recycling, disposal and destruction

- Name
- Description
- Direct and indirect greenhouse gas emission reduction
- Consideration of health, safety, resource efficiency and other environmental effects
- Cost – regionally differentiated
- Current market data and availability in different regions
- References to any policies regarding this practice
- Sources of additional information

**Alternative Technologies** for HFCs and PFCs

*(Using HFCs / PFCs or other fluids, gases or aerosols with negligible or lower global warming potential, or not-in-kind technologies including systems with reduced end energy consumption)*

- Name
- Description
- Technical performance
- Direct and indirect greenhouse gas emissions (using LCCP, TEWI)
- Other environmental effects
- Resource efficiency, including energy use
- Health, safety considerations
- Cost – regionally differentiated (as far as available)
- Current market availability in different regions
- References to any policies regarding this technology
- Sources of additional information.

### **Part C: Future estimation and availability of HFCs and PFCs**

This part will cover publicly available information on currently installed and planned global production capacities. Additionally, a summary will be provided of available demand and emission projections of HFCs and PFCs from previous IPCC and TEAP reports. This part will be co-ordinated by TEAP, subject to IPCC procedures.

The following division is chosen:

- Installed and planned production capacities including regional distribution
- Summarized estimates of future HFC and PFC demand and /or emissions, including regional distribution, drawn upon available IPCC and TEAP reports
- Comparison of HFC and PFC production capacities and demand

## 2. Planning and Costs

### 2.1 Time table:

- Call for nominations of CLA, LAs and RE have gone out in January. Deadline 20 March 2003
- A written approval of the selected CLA, LAs and REs will be done by the Bureaux of WG I and WG III in April
- Stakeholder consultations in May 2003 by Steering Committee
- Date first LA meeting: 3 days, June 2003
- Date second LA meeting: following COP 9, December 2003
- June 2004, December 2004 third and Fourth LA meetings
- March/April 2005, combined WG I/WG III plenary with approval of the SPM and acceptance of the main Special Report

### 2.2 Deliverables:

- Final Text and approved SPM will be available before SBSTA 22 and the Open Ended Working Group of the Montreal Protocol in June 2005
- Hard Copy Book, a CD ROM will be available by September 2005
- Outreach activities will be 2<sup>nd</sup> half of 2005

### 2.3 IPCC budget:

- |   |                  |
|---|------------------|
| • 2003: 2 LA meetings, 2 * 25 journeys from DC,                         | 315.700 CHF      |
| • 2004: 2 LA meetings, 2 * 25 journeys from DC,                         | 315.700 CHF      |
| • 2005: WG I/WG III panel combined with<br>SR CO2 storage, 120 journeys | 844.800CHF       |
| • Outreach activities, CD ROM   | to be determined |

**TERMS OF REFERENCE**  
**IPCC/TEAP STEERING COMMITTEE FOR SPECIAL REPORT:**  
**SAFEGUARDING THE OZONE LAYER AND THE GLOBAL CLIMATE SYSTEM:**  
**ISSUES RELATED TO HYDROFLUOROCARBONS AND PERFLUOROCARBONS**

1. In response to the decisions by the Eight Conference of Parties to the UN Framework Convention on Climate Change (UNFCCC), and the Fourteenth Meeting of the Parties to the Montreal Protocol, The 20th Session of the Intergovernmental Panel on Climate Change has established a Steering Committee to oversee the preparation of a Special Report entitled: Safeguarding the ozone layer and the global climate system: issues related to hydrofluorocarbons and perfluorocarbons, with the role and terms of reference as given below.

**Role**

2. The Steering Committee will act in a fashion consistent with the processes of the IPCC and the TEAP to produce the Special Report. A single integrated report is recommended by the Steering Committee, by the UNFCCC, and by the Montreal Protocol.
3. The role of the Steering Committee is to oversee the preparation of the above Special Report with an aim to complete the task so that the report can be submitted to the 22nd session of the UNFCCC-SBSTA meeting and to the Montreal Protocol 25th Open-ended Working Group, which both take place in the second quarter of 2005.
4. To this end, the Steering Committee shall prepare any draft decisions it considers necessary on the matter for submission to the IPCC Plenary.

**Composition**

5. The Steering Committee will be comprised of:
  - (a) Three representatives nominated by the TEAP; and
  - (b) Three representatives nominated by the IPCC.
6. The Steering Committee will elect its own Chair.

**Report Preparation**

7. The Special report will contain three distinct parts to be coordinated by IPCC WG I, WG III, and/or TEAP, drawing upon the experience and technical focus of each. A high degree of cooperation and interaction is envisaged in all cases:
  - (a) Part (a) will cover a brief summary of relevant findings regarding the relation of ozone layer depletion and global warming based upon the TAR and UNEP/WMO 1998 and 2002 reports. This part will also cover an assessment of toxicity, atmospheric chemistry effects (e.g., air quality) and potential build up of degradation products in the atmosphere, as well as build-up of the parent gases. This part will be co-ordinated by WG I of IPCC.
  - (b) Part (b) will cover relevant considerations in choosing among options to replace ozone-depleting substances. The choice among options involves a number of environmental, health, safety, availability and technical performance considerations in addition to consideration of direct and indirect greenhouse gas emissions.



For each chemical application the Special Report will cover the relevant technical/scientific considerations, including:

- Technical information relevant to the evaluation, including cost, availability, health, environment and safety considerations, technical performance, energy and resource efficiency and all greenhouse gas emissions, using a systematic approach, such as the total equivalent warming impact (TEWI) and Life Cycle Climate Performance (LCCP), to be co-ordinated by IPCC WG III and TEAP.
  - Technical options to reduce greenhouse gas emissions, e.g. through containment, recovery, recycling, destruction, the use of alternative fluids and not-in-kind technologies. Where appropriate, reference should be made to examples of relevant policies and measures. This part will be co-ordinated by IPCC WG III and TEAP. It is noted that industrial and consumer health/safety considerations will be co-ordinated by TEAP. The SR will have an appropriate liability disclaimer.
- (c) Part (c) will cover publicly available information on currently installed and planned global production capacities. Additionally, a summary will be provided of available demand and emission projections of HFCs and PFCs from previous IPCC and TEAP reports. No new assessment of future demand will be made. This part will be co-ordinated by TEAP, subject to IPCC procedures.
8. The Steering Committee will take account of overlaps and synergies between TEAP, IPCC WG III, and WG I. The Steering Committee will guarantee a high degree of co-operation between the three groups. The Steering Committee will make every effort to produce a user-friendly report.
9. Expert author teams are expected to include experts drawn from the TEAP and IPCC WG I and III communities. The Steering Committee will be responsible for proposing a slate of lead authors and review editors to the IPCC Bureau.
10. The Steering Committee will be responsible for supervising the timeline and for staying within the budget of the IPCC Trust Fund as approved by the IPCC Sessions for the preparation of the Special Report, and for staying within the budget of the Montreal protocol trust Fund where it concerns participation of developing country experts.

### **Reporting Arrangements**

11 The Chair of the Steering Committee will, in person or through a delegate, regularly report on progress with the preparation of the Special Report(s) to the Subsidiary Body on Scientific and Technical Advice (SBSTA) of the UN FCCC, to the Open ended Working Group and the Meeting of the Parties under the Montreal Protocol, and the IPCC Plenary.

PAPER NO. 2: TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL  
OF THE MONTREAL PROTOCOL

**Fourteenth Meeting of the Parties to the Montreal Protocol**

Decision XIV/10. Relationship between efforts to protect the stratospheric ozone layer and efforts to safeguard the global climate system: issues relating to hydrofluorocarbons and perfluorocarbons

Welcoming decision X/CP.8 taken by the eighth Conference of the Parties to the United Nations Framework Convention on Climate Change on the relationship between efforts to protect the stratospheric ozone layer and efforts to safeguard the global climate system,

Noting that the Intergovernmental Panel on Climate Change and the Technology and Economic Assessment Panel are invited by the Convention on Climate Change to develop a balanced scientific, technical and policy-relevant special report as outlined in their responses to a request by the Subsidiary Body for Scientific and Technological Advice of the Convention on Climate Change (UNFCCC/SBSTA/2002/MISC.23),

The Fourteenth Meeting of the Parties decides:

To request the Technology and Economic Assessment Panel to work with the Intergovernmental Panel on Climate Change in preparing the report mentioned above and to address all areas in one single integrated report to be finalized by early 2005. The report should be completed in time to be submitted to the Open-ended Working Group for consideration in so far as it relates to actions to address ozone depletion and the Subsidiary Body for Scientific and Technological Advice of the Convention on Climate Change simultaneously.

-----