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Protection of the Ozone Layer

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FINAL REPORT OF THE AD HOC WORKING GROUP OF LEGAL AND TECHNICAL  
EXPERTS FOR THE ELABORATION OF A GLOBAL FRAMEWORK CONVENTION  
FOR THE PROTECTION OF THE OZONE LAYER

## I. INTRODUCTION

1. The present report was prepared in pursuance of UNEP Governing Council decision 12/14, section I, of 28 May 1984, in which the Council requested the Executive Director to convene a fourth session of the Working Group in order to complete work on the Convention to the extent possible and to continue to elaborate a possible draft protocol concerning control of chlorofluorocarbons, and to ensure that any report from the Working Group was brought to the attention of the Conference of Plenipotentiaries on the Protection of the Ozone Layer.

2. This report contains an outline of the background to the work of the Working Group, and a summary of its discussions and recommendations, for submission through the Executive Director of UNEP to the Conference of Plenipotentiaries.

## II. GENERAL BACKGROUND

### A. Legislative authority

3. The question of the ozone layer was first considered by the Governing Council at its fifth session in 1977. By decision 84 C (V) of 25 May 1977 the Council established the Co-ordinating Committee on the Ozone Layer and urged support for the World Plan of Action on the Ozone Layer.

4. By decision 8/7 B of 29 April 1980, the Council confirmed the need for further co-operation on the ozone layer on a global scale, and recommended that Governments, especially those of countries where use of chlorofluorocarbons 11 and 12 was high, should achieve significant reductions in their use and encourage the development of ways to control releases into the atmosphere. The Council also recommended that production capacity for chlorofluorocarbons 11 and 12 should not be increased.

5. By decision 9/13 B of 26 May 1981 the Council decided to initiate work aimed at the elaboration of a global framework convention for the protection of the ozone layer, and to that end established the Working Group to report to it, through the Executive Director, on the progress of its work. At the same time the Governing Council requested the Executive Director:

"(a) To ensure that in the work so initiated, all relevant information and related work currently under way in other forums, as well as the results of any discussions on this subject at the Ad Hoc Meeting of Senior Government Officials Expert in Environmental Law, are taken into account;

"(b) To invite the Co-ordinating Committee on the Ozone Layer, as part of its activities under its mandate:

"(i) To contribute to the work of the Ad Hoc Working Group;

"(ii) To compile all relevant information, including statistical and technical data, on the implementation of the recommendations contained in decision 8/7 B of 29 April 1980, in particular that relating to reduction in the use of chlorofluorocarbons 11 and 12, as well as to production capacity on the basis of an agreed definition ...".

6. In decision 10/17 of 31 May 1982, the Governing Council commended the Working Group on its work and approved its recommendations concerning future work, requesting the Executive Director to convene a second session of the Group.

7. In decision 11/7, part two, section I, adopted on 24 May 1983, the Governing Council requested the Executive Director to make the necessary arrangements to assist the Working Group to complete its work.

8. In decision 12/14, section I of 28 May 1984, the Council requested the Executive-Director to convene a fourth session of the Working Group in order to complete work on the Convention to the extent possible and to continue to elaborate a possible draft protocol concerning control of chlorofluorocarbons, and to ensure that any report from the Working Group was brought to the attention of a diplomatic conference to be convened in 1985 for the finalization, adoption and signature of the Convention and for the consideration of a report from the Working Group concerning further work on a protocol.

B. Sessions of the Working Group

9. The Working Group held a total of four sessions, as follows:

First session	Stockholm	20-28 January 1982
	Report:	UNEP/WG.69/10 and Corr.1

Second session

First part	Geneva	10-17 December 1982
	Report:	UNEP/WG.78/8

Second part	Geneva	11-15 April 1983
	Report:	UNEP/WG.78/13

Third session

First part	Geneva	17-21 October 1983
	Report:	UNEP/WG.94/5
Second part	Vienna	16-20 January 1984
	Report:	UNEP/WG.94/10

Fourth session

First part	Geneva	22-26 October 1984
	Report:	UNEP/WG.110/4 and Corr.1
Second part	Geneva	21-25 January 1985
	Report:	See annex I.

10. The following Governments provided financial support and/or meeting facilities for sessions of the Working Group: Austria, Canada, Finland, Netherlands, Norway, Sweden, Switzerland and the United States of America.

11. The various sessions of the Working Group were attended by experts and observers from the following 50 States: Afghanistan, 1/ Algeria, 3/ Argentina, 4/ Australia, 4/ Austria, 3/ Belgium, 4/ Brazil, 2/ Bulgaria, 1/ Cameroon, 2/ Canada, 4/ Chile, 3/ Colombia, 2/ Congo, 1/ Denmark, 4/ Dominican Republic, 2/ Egypt, 3/ El Salvador, 1/ Finland, 4/ France, 4/ Gabon, 1/ Germany, Federal Republic of, 4/ Greece, 2/ Indonesia, 1/ Iran (Islamic Republic of), 1/ Iraq, 1/ Italy, 4/ Japan, 4/ Kenya, 1/ Kuwait, 3/ Mexico, 2/ Morocco, 1/ Nepal, 1/ Netherlands, 4/ Nigeria, 2/ Norway, 4/ Peru, 3/ Philippines, 2/ Poland, 3/ Senegal, 1/ Spain, 1/ Sweden, 4/ Switzerland, 4/ Thailand, 3/ Union of Soviet Socialist Republics, 4/ United Arab Emirates, 1/ United Kingdom of Great Britain and Northern Ireland, 4/ United States of America, 4/ Venezuela, 2/ Yugoslavia, 2/ and Zaire. 1/ In addition, the following 9 States submitted written comments to the Executive Director of UNEP: Burma, Central African Republic, Djibouti, Israel, Liberia, Madagascar, Mauritius, New Zealand and Sri Lanka. The United Nations Economic Commission for Latin America and the Caribbean and the Commission of the European Communities also submitted comments.

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- 1/ Attended one session.
  - 2/ Attended two sessions.
  - 3/ Attended three sessions.
  - 4/ Attended four sessions.

12. Representatives of the following international organizations also attended the sessions of the Working Group: United Nations Economic Commission for Europe, 1/ United Nations Industrial Development Organization, 2/ World Health Organization, 3/ World Meteorological Organization, 4/ European Economic Community, 4/ Organization for Economic Co-operation and Development, 3/ European Council of Chemical Manufacturers' Federations (CEFIC), 2/ European Federation of Aerosols, 1/ International Chamber of Commerce, 1/ International Council of Environmental Law, 1/ International Union for Conservation of Nature and Natural Resources. 1/

13. A list of the documents before the Working Group at its various sessions appears in annex I.

14. The text of the draft Convention for the Protection of the Ozone Layer, with two technical annexes, resulting from the work of the Group, is contained in document UNEP/IG.53/3. The report of the Working Group on its work at the second part of its fourth session is attached to the present final report as annex II, and the text of a draft protocol on chlorofluorocarbons appears in annex III.

Annex I

DOCUMENTS BEFORE THE WORKING GROUP AT ITS FOUR SESSIONS

First session (Stockholm, 20-28 January 1982)

UNEP/WG.69/1	Provisional agenda
UNEP/WG.69/2	Annotated provisional agenda
UNEP/WG.69/3	Draft International Convention for the Protection of the Stratospheric Ozone Layer - Text submitted by the delegations of Finland, Norway and Sweden
UNEP/WG.69/3/Add.1	Draft International Convention for the Protection of the Stratospheric Ozone Layer (draft preamble)
UNEP/WG.69/4	Extracts from the report of the <u>Ad Hoc Meeting of Senior Government Officials Expert in Environmental Law</u>
UNEP/WG.69/5	Towards an ozone convention: A look at some issues
UNEP/WG.69/6	An environmental assessment of ozone layer depletion and its impact
UNEP/WG.69/7	Contribution of the Co-ordinating Committee on the Ozone Layer to the <u>Ad Hoc Working Group of Legal and Technical Experts</u>
UNEP/WG.69/8	Some observations on the preparation of a global framework convention for the protection of the stratospheric ozone layer
UNEP/WG.69/9	A review of Government responses to Governing Council decisions 8/7 B and 9/13 B concerning chlorofluorocarbons and risks to the ozone layer
UNEP/WG.69/10 and Corr.1	Report of the <u>Ad Hoc Working Group of Legal and Technical Experts for the Elaboration of a Global Framework Convention for the Protection of the Ozone Layer on its first session</u>

Second session - first part (Geneva, 10-17 December 1982)

UNEP/WG.78/1/Rev.2	Provisional agenda
UNEP/WG.78/2 and Corr.1	Draft Convention for the Protection of the Ozone Layer, with commentary
UNEP/WG.78/3	Alternative structures and formats for technical annexes and/or protocols to the draft Convention for the Protection of the Ozone Layer
UNEP/WG.78/4	Institutional arrangements for a convention for the protection of the ozone layer

- UNEP/WG.78/5 Procedures and limitations of assessing socio-economic impact of alternative strategies for protection of health and the environment from adverse effects of depletion of the ozone layer
- UNEP/WG.78/6 Aspects of the international transfer of technology information relating to activities which may affect the ozone layer
- UNEP/WG.78/7 Financial implications of the implementation of the Convention for the Protection of the Ozone Layer
- UNEP/WG.78/8 Report of the Working Group (on the first part of its second session)

Second session - second part (Geneva, 11-15 April 1983)

- UNEP/WG.78/9 Annotated provisional agenda
- UNEP/WG.78/10 Revised draft Convention for the Protection of the Ozone Layer, with additional commentary
- UNEP/WG.78/11 Possible contents of annexes and/or protocols
- UNEP/WG.78/12 Executive summary of the recommendations of the Co-ordinating Committee on the Ozone Layer
- UNEP/WG.78/13 Report of the Working Group (on the second part of its second session)

Third session - first part (Geneva, 17-21 October 1983)

- UNEP/WG.94/1 Provisional agenda
- UNEP/WG.94/2 Annotated provisional agenda
- UNEP/WG.94/3 Second revised draft Convention for the Protection of the Ozone Layer, with additional commentary
- UNEP/WG.94/3/Add.1 and 2 Second revised draft Convention for the Protection of the Ozone Layer - Summary of comments by Governments
- UNEP/WG.94/3/Add.3 Draft annex concerning measures to control, limit and reduce the use and emissions of fully halogenated chlorofluorocarbons (CFCs) for the protection of the ozone layer, submitted by Finland, Norway and Sweden - Summary of comments by Governments
- UNEP/WG.94/4 Draft annex concerning measures to control, limit and reduce the use and emissions of fully halogenated chlorofluorocarbons (CFCs) for the protection of the ozone layer

UNEP/WG.94/4/Add.1, 2 and 3 Draft annex concerning measures to control, limit and reduce the use and emissions of fully halogenated chlorofluorocarbons (CFCs) for the protection of the ozone layer, submitted by Finland, Norway and Sweden - Summary of comments by Governments

UNEP/WG.94/4/Add.4 Draft annex concerning measures to control, limit and reduce the use and emissions of fully halogenated chlorofluorocarbons (CFCs) for the protection of the ozone layer, submitted by Finland, Norway and Sweden - Comments received from the Commission of the European Communities

UNEP/WG.94/5 Report of the Working Group (on the first part of its third session)

Third session - second part (Vienna, 16-20 January 1984)

UNEP/WG.94/5/Add.1 Texts relating to final clauses

UNEP/WG.94/6 Provisional agenda

UNEP/WG.94/7 Annotated provisional agenda

UNEP/WG.94/8 Third revised draft Convention

UNEP/WG.94/9 Revised draft protocol concerning measures to control, limit and reduce the emissions of chlorofluorocarbons (CFCs) for the protection of the ozone layer

UNEP/WG.94/10 Report of the Working Group (on the second part of its third session)

UNEP/WG.94/11 Fourth revised draft Convention for the Protection of the Ozone Layer

UNEP/WG.94/12 Second revised draft protocol concerning measures to control, limit and reduce the emissions of chlorofluorocarbons (CFCs) for the protection of the ozone layer

UNEP/WG.94/13 Financial implications of the implementation of the Convention for the Protection of the Ozone Layer: Revised estimates

UNEP/WG.94/13/Add.1 Financial implications of the implementation of the Convention for the Protection of the Ozone Layer: Revised estimates: Comments by WMO

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Fourth session - first part (Geneva, 22-26 October 1984)

UNEP/WG.110/1	Provisional agenda
UNEP/WG.110/1/Add.1	Annotated provisional agenda
UNEP/WG.110/2	Summary of comments received from Governments on the fourth draft Convention and second revised draft protocol
UNEP/WG.110/3	Executive summary of the assessment of ozone layer modification and its impact (October 1984)
UNEP/WG.110/4 and Corr.1	Report of the Working Group on its work at the first part of its fourth session

Fourth session - second part (Geneva, 21-25 January 1985)

UNEP/WG.110/5	Provisional agenda
UNEP/IG.53/3	Fifth revised draft Convention for the Protection of the Ozone Layer
UNEP/IG.53/4	Final report of the Working Group

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Annex II

REPORT OF THE AD HOC WORKING GROUP ON ITS WORK  
AT THE SECOND PART OF ITS FOURTH SESSION

(Geneva, 21-25 January 1985)

I. INTRODUCTION

1. The second part of the fourth session of the Ad Hoc Working Group of Legal and Technical Experts for the Elaboration of a Global Framework Convention for the Protection of the Ozone Layer was held in Geneva from 21 to 25 January 1985, in accordance with UNEP Governing Council decision 12/14, section I.

II. ORGANIZATIONAL MATTERS

A. Opening of the meeting

2. The second part of the fourth session was opened on behalf of the Executive Director of UNEP by the Deputy Director of the Environmental Management Service and Chief of the Environmental Law Unit, Mr. P.H. Sand. After recalling the mandate and status of the Working Group, he stressed the global scope of its efforts and expressed the hope that when presenting the results of its work to the forthcoming Conference of Plenipotentiaries, the Group would keep in mind the need to submit clear and consistent drafts, in order to facilitate study and acceptance also by States which had not participated in the work of the Working Group.

B. Attendance

3. The second part of the fourth session was attended by experts from Afghanistan, Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Egypt, Finland, France, Germany, Federal Republic of, Indonesia, Italy, Japan, Mexico, Morocco, Netherlands, Norway, Peru, Philippines, Poland, Sweden, Switzerland, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland and United States of America. Representatives were also present from the United Nations Economic Commission for Europe; the World Meteorological Organization; the European Economic Community and the Organisation for Economic Co-operation and Development; the European Council of Chemical Manufacturers' Federations, the International Chamber of Commerce and the International Council of Environmental Law.

C. Election of officers

4. The Working Group re-elected as its Chairman Mr. W.J. Kakebeeke (Netherlands), who had previously served as Chairman at the third session and the first part of the fourth session. The Working Group also re-elected Mr. V. Zakharov (Union of Soviet Socialist Republics) as Vice-Chairman, and Mr. A.L. Davèrède (Argentina) as Rapporteur.

D. Adoption of the agenda and organization of work

5. The Working Group adopted the following agenda:

1. Opening of the meeting.

2. Election of officers.
3. Adoption of the agenda and organization of work.
4. Consideration of a draft convention for the protection of the ozone layer.
5. Consideration of a draft protocol on chlorofluorocarbons.
6. Other business.
7. Adoption of the report.
8. Closure of the session.

### III. CONSIDERATION OF A DRAFT CONVENTION FOR THE PROTECTION OF THE OZONE LAYER

6. The Working Group agreed that the sixth reading of the draft Convention would take place in an informal working group of the whole, the results of whose deliberations, in the form of an agreed revised text where possible, would be communicated to the Working Group meeting in formal session, for discussion and decision as appropriate.

7. On the basis of document UNEP/WG.94/11 (fourth revised draft Convention for the Protection of the Ozone Layer, including draft technical annexes I and II) and document UNEP/WG.110/4 (report of the Working Group on its work at the first part of its fourth session), the Working Group completed a further reading of the provisions and annexes.

8. An informal group chaired by the Vice-Chairman of the Working Group was reconvened to consider the different proposals regarding settlement of disputes. Its conclusions were presented to the plenary meeting of the Working Group.

9. Following extensive discussion, a fifth revised draft convention, with technical annexes, was prepared for submission through the Executive Director to the Conference of Plenipotentiaries on the Protection of the Ozone Layer (UNEP/IG.53/3). It was agreed to submit a revised text representing the consensus of the Working Group. However, some experts expressed reservations concerning articles 7, 11 and 12, which are set out below.

#### Article 7 (Secretariat)

10. One expert expressed a reservation concerning the provisions of this article.

#### Article 11 (Settlement of disputes)

11. One expert expressed the view that portions of the dispute settlement procedures contained in the revised text of article 11 were unusual and without clear precedent, and that they might prove unworkable in practice. However, in the interest of not holding up further the important work of the meeting, he would not oppose the apparent consensus. He further stressed that his Government would have to scrutinize carefully the articles as well as study alternative language prior to the diplomatic conference, and that it might prove necessary to reopen the issue in Vienna.

12. A number of other experts also expressed reservations concerning article 11. They would further study its draft and might present alternatives at the diplomatic conference.

#### Article 12 (Signature)

13. The expert from the European Economic Community, referring to the wording which had been adopted for article 12 and articles related to it, underlined his opposition to their adoption, inasmuch as they subordinated the participation of a regional economic integration organization with competence in the matters governed by the Convention to that of at least one of its member States. He reserved the right to reopen discussion of the matter at the diplomatic conference.

#### IV. CONSIDERATION OF A DRAFT PROTOCOL ON CHLOROFLUOROCARBONS

14. The Working Group heard several general statements concerning the question of a possible protocol on chlorofluorocarbons.

15. The expert from the United States of America drew attention to recent indications that a substantial risk to the ozone layer still existed. First, even models which predicted only a small depletion in total ozone pointed to a substantial change in its vertical distribution. Secondly, recent model results indicated that the atmospheric response to increasing chlorine concentrations might not be linear: when the chlorine build-up reached a critical point, the ozone decline might be rapid and precipitous and not reversible through short-term human action. Despite the complexity of the forces determining future changes, it now seemed clear that if CFC use continued to grow, some depletion of the ozone layer was likely to occur.

16. Granted that scientific uncertainties were likely to remain for several years, it was necessary to consider what would be the consequences of delay resulting from insistence on 100 per cent accuracy and failure to take action now to prevent irreversible damage to the ozone layer. While co-operation in research, as provided for in the Convention, was necessary, the potential risks made it essential to adopt in addition a protocol which could lead to meaningful reductions in CFC emissions in the short term. Substantial progress had already been made in several countries in limiting CFC use in aerosols, one of the least essential uses, but at the same time the text allowed for special situations where there was a continuing need for CFCs as propellants. Concerns about flammability of CFC substitutes had proved unwarranted.

17. An important aspect of the protocol, in his opinion, was the multi-optional format, which would enable countries in widely differing circumstances to accept the protocol and would also reward past action by Governments to reduce CFC use. The single-option approach put forward by EEC had various shortcomings: the production capacity cap was so high compared with current production that irreparable damage to the ozone layer might well occur before the cap became binding; when the cap did come into effect, countries would have to make greater reductions in the use of CFCs, and limit more essential and less easily substitutable uses; no account was taken of potential changes in the vertical ozone profile; no restriction was placed on exports or imports, so that the protocol would be likely to be ineffective in limiting global emissions; capping present capacity and freezing current production and market shares was prejudicial to developing countries and some others.

18. The multi-optional approach would serve to buy time for further scientific research while prudently safeguarding the environment in the short term. It was a pragmatic approach which did not rule out future additional actions. He urged the Working Group to ensure that that measure was available to participants at the diplomatic conference to adopt if they so wished, furnishing a clear signal to the world that, even in the face of uncertainty, it was still possible to take precautionary steps to safeguard future human welfare against important risks.

19. The expert from the European Economic Community said that the EEC proposal for a production capacity limitation provided a logical and complete answer to the concerns expressed. If a limitation were imposed there would be no chance that emissions would increase to such an extent that chlorine concentrations would exceed the critical value; furthermore, changes in vertical distribution following the imposition of a cap would undoubtedly be less marked than those caused by inevitable growth, for example, in the non-aerosol sector, under the alternative approach.

20. In response to the criticisms made of the single-option approach, he pointed out, firstly, that its ceiling on production capacity, while admittedly higher than current production levels, was not so high as to permit the catastrophe which could result from the alternative proposal made by the Toronto group. Secondly, if countries had in future to curtail some uses of CFCs, that could be accomplished in an orderly manner to minimize economic damage. Thirdly, the EEC approach did more than the alternative to limit the long-term potential changes in the vertical profile of ozone. Fourthly, imports and exports were irrelevant in the context of the Convention, whose aim was to ensure world-wide application of the measures proposed. Lastly, the legitimate concerns of the developing countries could be discussed in the Working Group.

21. The key long-term measure of the production capacity cap in the EEC countries had been supplemented by steps to secure a substantial reduction in current use of CFCs in aerosols, and actions in such fields as solvents, refrigeration and foam. The multi-optional approach amounted in essence to no more than a short-term ban on CFCs in aerosols, and failed to address the real long-term problem.

22. One expert raised several objections to the proposed production capacity cap, and suggested that regulatory measures should await further results from the work of the Co-ordinating Committee on the Ozone Layer.

23. Another expert said that the protocol should not be finalized before the adoption of the Convention. Other experts emphasized the need for a protocol to be adopted simultaneously with the Convention, in order to prevent environmental harm before it was too late.

24. Another expert stated that his country, as a long-standing supporter of the protection of the environment, would favour a genuinely effective draft protocol. It should be limited to aerosols, in order to tackle non-essential uses first. In addition, the obligations under the protocol should begin to apply to each party when it enters into force for that party. He expressed his preference for a multi-optional solution, which was more flexible and would adapt better to the various situations envisaged - different degrees of development, levels of production capacity, etc.

25. Another expert pointed out that it was important that the biggest producers should reach agreement on the protocol, and that smaller producers should not try to impose their views. Both main approaches to the problem had some shortcomings, and further elaboration would be required. All CFC emissions, and not only those originating from aerosols, should be reduced.

26. The observer from the European Council of Chemical Manufacturers' Federations (CEFIC) presented a summary of mathematical model calculations prepared by Professor G. Brasseur and Ms. A. de Rudder of the Institut d'Aéronomie de Belgique using a 1-D chemical radiative model of the atmosphere. Scenarios reflecting alternative regulatory regimes for a CFC protocol had been fed into multi-perturbation, time-dependent calculations in order to assess the potential effect of such global regulations on stratospheric ozone. The most significant conclusions from the calculations were that:

(a) Even with significant CFC growth the threat to the ozone layer would be a distant one;

(b) If further actions were to become necessary in the future in response to a period of sustained CFC growth, then a capacity cap would contain the situation, whereas an aerosol ban would achieve little over and above the protection conferred by a production capacity cap;

(c) An aerosol ban alone would not provide long-term protection in the event of sustained CFC growth.

27. The Working Group reviewed the third revised draft protocol (UNEP/WG.110/4, annex IV) in informal working sessions and completed a further reading of its provisions. The outcome of the review is reflected in the fourth revised draft protocol attached herewith as annex III.

28. There was a general discussion on the contents of article II of the protocol on the control of the use of CFCs.

29. The expert from Canada, speaking on behalf of six countries, reviewed recent scientific results which indicated the risk of precipitous declines in the ozone layer. He indicated that even a depletion of 2.5 per cent could add 5 million skin cancer cases per year, 10,000 deaths, and declines in agricultural and fisheries production. He referred to the fact that the existing alternatives for the use of CFCs in refrigeration and foam plastics were costly, whereas for aerosol sprays effective alternatives did exist which were even less costly than CFCs. With regard to the EEC formulation of the control protocol, that approach was not advocated by the six countries because (a) a production capacity cap did not offer an immediate control mechanism; (b) there was concern about how one determined an appropriate level for a production capacity cap, and (c) the economic consequences of such a cap applied globally could result in a significant transfer of funds from the developing countries to CFC producers in the developed world. Outlining the multi-optional approach, he indicated that the proposal was based on (a) flexibility to choose the option appropriate to a particular nation, (b) equity of control actions taken by nations signing the protocol, and (c) shared responsibility by all consuming nations. The proposal was a first step forward which would require review in the light of continuing research into a truly global environmental problem.

30. On behalf of the six co-sponsors, the expert from Canada then introduced a document containing a consolidation of proposals for article II of the protocol put forward during the first part of the fourth session of the Working Group and reflected in annex IV of document UNEP/WG.110/4, not a substantive revision thereof. He pointed out that the time periods mentioned in the various options would start to run from the moment of entry into force of the protocol for each party, and summarized as follows the main features of the multi-optional approach reflected in that document:

(a) The four options, although not identical, were approximately equivalent in terms both of effective and immediate protection of the ozone layer and of equitable sharing of responsibility among all countries;

(b) The drafting of the four options was subject to improvement in order to take into account the needs and capabilities of the broadest possible range of countries;

(c) The four options were not meant to be exclusive, and could be supplemented by other effective and equitable options.

After explaining the rationale and effect of each of the four options, he recalled the Chairman's ruling that clean texts of both the Convention and the protocol should be sent to the diplomatic conference and that majority views on non-consensus items should be reflected in the text of the agreements themselves, with any reservations concerning such views set out in the text of the Working Group's report.

31. The expert from the European Economic Community, declaring that he was speaking on behalf of the member States of the Community, pointed out that the so-called "multi-optional" approach incorporated in the text proposed by the experts of Canada and others still essentially amounted to a ban on use of CFCs in aerosols and did not imply any effort on the part of those countries to limit production of CFCs. As regards the questions raised by some delegations as to how a production capacity cap could be implemented and controlled, he recalled that the matter had already been outlined in the report of the previous meeting of the Working Group (UNEP/WG.110/4, paragraph 32). He further recalled that the latest scientific evidence, particularly the most recent report of CCOL, appeared largely to support the approach proposed by EEC, especially in protecting against a possible "chlorine catastrophe". For those reasons EEC maintained its proposal for article II, which had moreover been revised to take account in particular of the needs of developing countries. In this context he underlined that his proposal constituted a truly global approach to the problem of protecting the ozone layer, since it provided not only for limitations on production but also for reductions in the use of CFCs in the aerosol sector and for measures in the non-aerosol sector. Lastly, he recalled the willingness of the Community to continue discussions both at the diplomatic conference in Vienna and elsewhere, so as to find a generally acceptable solution which took due account of the latest scientific evidence and which would allow global participation both in the Convention and in the protocol.

32. One expert expressed his disappointment at the failure to reach agreement on article II, but was willing to continue working on the more flexible multi-optional approach. Although the present situation in his country would allow it to fulfil the requirements of the option in paragraph 4 of the proposal introduced by the Canadian expert, his Government would reconsider its position in Vienna. The main idea of that option was to limit the over-all use of CFCs and not to focus on aerosols only. That principle could be applied as such by developed countries, and could be adapted to the needs of developing countries by allowing them a certain increase in total use over the present per capita level.

33. Three other experts expressed their preference for the multi-optional approach as introduced by the expert from Canada, and proposed that that text should be submitted to the diplomatic conference.

34. Another expert supported the EEC proposal regarding article II, while four other experts were of the view that both proposals should be submitted to the diplomatic conference.

35. Another expert proposed a text to be added to the proposal introduced by the expert of Canada between its paragraphs 4 and 5, to take into account the particular needs of developing countries. He proposed the following text:

"The requirements of paragraphs 1, 2, 3 and 4 shall not apply to developing countries to the extent that they produce CFCs for uses which they deem to be vital to their needs".

A variety of comments were made on the proposal, which was not opposed in principle by any expert. Because of lack of time, it was decided to reconsider the proposed addition at the diplomatic conference.

36. On the basis of the different views expressed, the Working Group decided to include both main proposals on control of CFC emissions in the draft protocol to be submitted to the diplomatic conference, as alternative texts.

#### V. OTHER BUSINESS

37. The Chairman expressed the appreciation of the Working Group to the Governments of Canada, Finland, Norway and the United States of America for financial support provided for the fourth session of the Group.

38. The meeting took note of the comments submitted by the World Meteorological Organization regarding the revised estimates of financial implications of the implementation of the Convention (UNEP/WG.94/13/Add.1).

39. The Chairman informed the meeting that he had received letters from some experts which would be reproduced in appendix I to the present report.

40. The Working Group recommended that informal consultations should be carried out during the period before the diplomatic conference in Vienna, with a view to narrowing down the outstanding differences on the draft texts.

41. The Working Group also recommended that time should be set aside during the diplomatic conference for a negotiating group to meet in order to finalize the text of a draft protocol.

VI. ADOPTION OF THE REPORT AND CLOSURE OF THE SESSION

42. The Working Group considered the draft report presented by the Rapporteur and adopted it with various amendments. The secretariat was entrusted with the task of finalizing the report and its annexes as amended.

43. The Working Group heard a closing statement by the Executive Director of UNEP, which is attached as appendix II. Following the customary exchange of courtesies, the Chairman declared the session closed.

Appendix I

LETTERS TRANSMITTED TO THE CHAIRMAN OF THE AD HOC WORKING GROUP  
OF LEGAL AND TECHNICAL EXPERTS FOR THE ELABORATION OF A GLOBAL  
FRAMEWORK CONVENTION FOR THE PROTECTION OF THE OZONE LAYER AT  
THE SECOND PART OF ITS FOURTH SESSION

Letter dated 24 January 1985 from the expert of the Union of Soviet Socialist  
Republics:

"The delegation of the Federal Republic of Germany to the second part of the fourth session of the UNEP Ad Hoc Working Group of Legal and Technical Experts for the Elaboration of a Global Framework Convention for the Protection of the Ozone Layer includes Mr. T. Bunge, an official of the Federal Environmental Agency of the Federal Republic of Germany, which is illegally located in West Berlin.

"The appointment of an official of that Agency as a member of the delegation of the Federal Republic of Germany cannot be viewed as anything other than an act aimed at misusing the authority of UNEP in order to obtain legal sanction for the State bodies of the Federal Republic of Germany illegally located in Berlin (West).

"The establishment of such bodies in Berlin (West) is in direct contradiction with the provision of the Quadripartite Agreement of 3 September 1971 that Berlin (West) is not a constituent part of the Federal Republic of Germany and will not be governed by it in the future. Attempts to include such institutions in international co-operation create complications and hinder the fulfilment of the tasks facing UNEP.

"In view of the foregoing, the representative of the USSR cannot recognize as lawful the appointment of Mr. Bunge as a member of the delegation of the Federal Republic of Germany and requests you, Mr. Chairman, to take the appropriate measures for this statement to be duly recorded in the report of our session."

Letter dated 24 January 1985 from the expert of the United States of America

"On behalf of the delegations of France, the United States of America, and the United Kingdom of Great Britain and Northern Ireland, I should like to address you on the subject raised by the Head of the USSR Delegation in his letter to you of 24 January 1985.

"The establishment of the Federal Environmental Agency in the western sectors of Berlin was approved by the French, American and British authorities acting on the basis of their supreme authority. These authorities are satisfied that the Federal Environmental Agency does not perform in the western sectors of Berlin acts in exercise of direct State authority over the western sectors of Berlin. Neither the location nor the activities of that Agency, in the western sectors of Berlin, therefore, contravenes any of the provisions of the Quadripartite Agreement.

"We cannot agree that the involvement of institutions such as the Federal Environmental Agency in any way impedes the work of the UNEP.

"Furthermore, there is nothing in the Quadripartite Agreement which supports the contention that residents in the western sectors of Berlin may not be included in delegations of the Federal Republic of Germany to international conferences; in fact Annex IV of the Quadripartite Agreement stipulates that, provided matters of security and status are not affected, the Federal Republic of Germany may represent the interest of the western sectors of Berlin in international conferences and that western sectors of Berlin residents may participate jointly with participants from the Federal Republic of Germany in international exchanges. Furthermore, as a matter of principle, it is for the Federal Republic of Germany alone to decide on the composition of its delegation.

"Regarding other communications on this subject, I would like to state that States which are not parties to the Quadripartite Agreement are not competent to comment authoritatively on its provisions."

Letter dated 24 January 1985 from the expert of the Federal Republic of Germany

"With reference to the letter of the delegation of the Union of Soviet Socialist Republics of 24 January 1985 concerning the participation of Dr. T. Bunge at the above-mentioned meeting, I have the honour to communicate the following:

"My delegation fully shares the view expressed in the letter of the delegation of the United States of America of 24 January 1985, also on behalf of the delegations of France and the United Kingdom of Great Britain and Northern Ireland.

"In the view of the Government of the Federal Republic of Germany the task of this meeting consists in promoting international co-operation in the field of the protection of the ozone layer and not in discussing political matters which are beyond the scope of this meeting. The delegation of the Federal Republic of Germany is guided by the wish to provide the utmost possible expertise for the benefit of this meeting. Furthermore, as a matter of principle, it is for each member State alone to decide which institutions or persons it wishes to be represented by in the work of this organization."



Appendix II

STATEMENT BY THE EXECUTIVE DIRECTOR OF UNEP

DELIVERED AT THE CLOSING MEETING OF THE FOURTH SESSION OF THE  
WORKING GROUP

Mr. Chairman, Distinguished Members of the Working Group,

Three years ago, in Stockholm, I said that I did not underestimate the difficulties you would encounter in drawing up a framework convention for ozone layer protection. So today I am pleased to congratulate you on your willingness and ability to reach relatively rapid consensus on many of the most significant challenges posed by this complex and critical issue. Your work on the protocol agreement has established a well of mutual trust in your negotiations that will no doubt help significantly in reaching the final agreement. For this you deserve special thanks and praise.

Particular thanks are due to all the countries represented in this series of Working Groups, to the Co-ordinating Committee on the Ozone Layer, to the World Meteorological Organization, and to the individual scientists and experts who made such strides over the last several years in our understanding of a difficult and perplexing topic. I am also pleased to note the regular participation of industry representatives in the Working Group, since industry co-operation will indeed be an essential factor in future international action.

The long process of identifying risk, elaborating theory, practically inventing a new science since Rowland and Molina took the first hesitant steps more than a decade ago, is a classic example of the many obstacles we face in the environmental movement, and in particular at UNEP, when we attempt to turn understanding into action. Protection of the ozone layer is by nature a global problem, requiring concerted international response; it points to the need to take preventive, anticipatory action in the face of environmental damage that is invisible and, we hope, not yet upon us.

Reaching the present accord (and eliminating the famous "square brackets" of the convention) has not been made easier by the extraordinarily complex nature of the topic it addresses. Each passing year - since the Washington meeting in 1977, through Montevideo and the 1981 Governing Council decision to launch a global convention framework - has seen new, often contradictory evaluations of mankind's threat to the fragile ozone layer. Supersonic transport, once the focus of the ozone debate, has now largely been discounted as a threat. Furthermore, historical data has not yet shown a significant trend in total ozone depletion that can be attributed to human activities, perhaps because any stratospheric ozone depletion resulting from chlorofluorocarbons and nitrogen oxide emissions has been partially offset by increasing tropospheric ozone due to higher concentrations of other trace gases which increase ozone.

But we have many reasons not to take undue comfort in such trends, based not only on recent findings concerning ozone modification, but also on our greater understanding of the effects of increased UV-B radiation. While it is true that some scenarios predict a relative increase in total ozone over the next several decades, this position ignores the inherent danger to the global climate as a result of the vertical redistribution of ozone that would accompany such an increase. Tropospheric ozone

results in a significant greenhouse effect all by itself, and UNEP is currently investigating the cumulative greenhouse effect of ozone, carbon dioxide, and other trace gases in troposphere.

Another recent worry is the predicted non-linear relationship between high concentrations of chlorine in the atmosphere and consequent ozone depletion, with an attendant risk of greater than 10 per cent ozone reduction. This prediction rekindles the concern that a 1 per cent ozone decrease results in a 2 per cent increase in UV-B radiation, and as much as a fourfold increase in certain skin cancers as well as other adverse biological effects.

I also wish to add a note of caution on the subject of CFC 11 and 12 production. The 1983 figure represented a 21 per cent reduction from the peak level of 1974, but behind that impressive figure lie two fairly disturbing trends. The first is that the over-all decrease since 1976 is made up of two separate factors - a 51 per cent decrease in aerosols, and a 36 per cent increase in non-aerosol CFC use. The second is that a Chemical Manufacture's Association report shows about a 7 per cent increase in CFC<sub>11</sub> and CFC<sub>12</sub> in 1983 over 1982 levels, and both aerosol and non-aerosol use were seen to have increased during that period.

I mention these various signs because I believe - and all of you must realize - that the stakes are too high, that they call for the utmost prudence. I believe the agreements reached here are satisfying evidence that the catalytic role of a specialized, international body such as UNEP, is crucial to focusing international attention and cementing global accord. You can rest assured that UNEP, through the CCOL, will continue its functions of co-ordinating research and assessing ozone modifications so that future amendments to the technical annexes of the convention and additional protocols, if necessary, might reflect the latest in scientific understanding of our predicament regarding the ozone layer.

In asking all of you to, in turn, urge your governments to sign the convention and exert every effort to agree on a responsible, acceptable protocol when we all meet again in Vienna, I can only remind you that the long process of research and debate on the ozone layer has made all of us more keenly aware that failure to take stringent action on this particularly complex issue would spell irreversible harm to all living organisms and to the natural ecological balance that sustains us all.

It is this overarching threat that brought us together, and I hope that our mutual awareness of it will prompt the fullest possible agreement in Vienna and beyond.

Annex III

FOURTH REVISED DRAFT PROTOCOL ON CHLOROFLUOROCARBONS

Text agreed by the Working Group at the second part of its fourth session

PREAMBLE

THE PARTIES TO THIS PROTOCOL,

Being parties to the Convention for the Protection of the Ozone Layer,

Mindful of their obligation under the Convention to take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer,

Recognizing the possibility that world-wide emissions of fully halogenated chlorofluorocarbons can significantly deplete and otherwise modify the ozone layer, resulting or likely to result in adverse effects on human health and the environment,

Recognizing also the potential climatic effects of chlorofluorocarbon emissions,

Determined to protect the ozone layer by taking precautionary measures to control total global emissions of chlorofluorocarbons [from aerosols],

Mindful of the precautionary measures for controlling emissions of chlorofluorocarbons that have already been taken at the national and regional levels,

Aware that measures taken to protect the ozone layer from modifications due to the use of chlorofluorocarbons should be based on relevant scientific and technical considerations,

Considering that emissions of chlorofluorocarbons used in aerosols can be relatively economically controlled,

Mindful that special provision needs to be made in regard to the production and use of chlorofluorocarbons for the benefit of developing countries,

Considering the importance of promoting international co-operation in the research and development of science and technology on the control and reduction of CFC emissions, bearing in mind, in particular, the needs of developing countries,

HAVE AGREED AS FOLLOWS:

ARTICLE I: DEFINITIONS

For the purposes of this Protocol,

1. "The Convention" means the Convention for the Protection of the Ozone Layer;
2. "Parties" means, unless the context otherwise requires, Parties to this Protocol;
3. "The Secretariat" means the Secretariat of the Convention;
4. "Chlorofluorocarbon" or "CFC" means any fully halogenated chlorofluoroalkane.

Alternative 1

ARTICLE II: CONTROL MEASURES

1. --Each Party shall select one of the control options set out in paragraphs 1 to 4 below. After entry into force of this Protocol for it, each Party shall either:

- (a) (i) Within two years, ensure that its total annual use of CFCs in aerosols does not exceed 60 per cent of the amount of CFCs it used in aerosols in the year of its maximum use prior to the entry into force of this Protocol; and
- (ii) Within four years, ensure that its total annual use of CFCs in aerosols does not exceed 20 per cent of the amount of CFCs it used in aerosols in the year of its maximum use prior to the entry into force of this Protocol; and
- (iii) Within six years, ensure that its total annual use and exports of CFCs in aerosols does not exceed 20 per cent of the amount of CFCs it used and exported in aerosols in the year of its maximum use prior to the entry into force of this Protocol; or
- (b) (i) Within four years, prohibit all uses of CFCs in aerosols except for those uses it considers to be essential; and
- (ii) Within six years, prohibit all exports of CFCs in aerosols except for those uses it considers to be essential; or
- (c) (i) Within two years, ensure that its total annual use of CFCs in aerosols does not exceed 60 per cent of the amount of CFCs it used in aerosols in the year of its maximum use prior to the entry into force of this Protocol; and
- (ii) Within four years, ensure that its total annual use of CFCs in aerosols does not exceed 30 per cent of the amount of CFCs it used in aerosols in the year of its maximum use prior to the entry into force of this Protocol; and
- (iii) Within six years, ensure that its total annual use and exports of CFCs in aerosols does not exceed 30 per cent of the amount of CFCs it used in aerosols in the year of its maximum use prior to the entry into force of this Protocol; and
- (iv) Ensure that its total production capacity for CFCs does not exceed the total production capacity at the moment of entry into force of this Protocol; or
- (d) Within four years, ensure that its total annual use of CFCs does not exceed 80 per cent of the amount of CFCs it used in the year of its maximum use prior to the entry into force of this Protocol.

2. The provisions of this article shall in no way affect the right of the Parties to adopt domestic measures stricter than those provided for in paragraphs 1(a) to (d) above.

Alternative 2

## ARTICLE II: CONTROL OF THE USE OF CFCs IN AEROSOLS

1. Each Party shall take all appropriate precautionary measures to ensure that industry situated in its territory does not increase its production capacity of CFCs 11 and 12.
2. Each Party shall, within two years after entry into force of this Protocol for it, ensure that there is a reduction in its total annual use of CFCs 11 and 12 in aerosols of at least 30 per cent of its use of these CFCs in aerosols in 1976.
3. The requirements of paragraphs 1 and 2 shall not apply to developing countries to the extent that they use only chlorofluorocarbons 11 and 12 for purposes which they deem vital to their needs.
4. The provisions of this article shall in no way affect the right of the Parties to adopt measures stricter than those provided for in paragraphs 1 and 2.
5. The Parties shall co-operate in actions aimed at reducing chlorofluorocarbon losses and developing the best practicable technologies in order to limit emissions in the synthetic foam, refrigeration and solvent sectors.

## ARTICLE III: REVIEW OF CONTROL MEASURES

The Parties shall regularly at their meetings reassess the control measures provided for in article II, on the basis of the scientific, environmental and economic information available, and shall take all appropriate action.

## ARTICLE IV: REPORTING OF INFORMATION

1. Within one year after the entry into force of this Protocol for it, each Party shall inform the Secretariat of its year of maximum use of CFCs in aerosols, as provided for in article II and the total amount of such use in that year.
2. The Parties to this Protocol, either individually or jointly, shall submit annually to the Secretariat:
  - (a) Aggregated data on the total amounts of CFCs used in aerosols and the total amounts of CFCs exported in aerosols;
  - (b) A list of the uses they consider essential pursuant to paragraph 1 (b) of article II, and the reasons why such uses are considered essential;
  - (c) Information on national laws, regulations, policy directives and other measures adopted to implement this Protocol;
  - (d) Any other information to indicate their implementation of this Protocol.

## ARTICLE V: RESEARCH, DEVELOPMENT AND EXCHANGE OF INFORMATION

1. Recognizing that reductions gained by implementation of article II may be offset by potential growth in other uses of CFCs, the Parties shall co-operate in promoting, directly and through competent international bodies, bearing in mind the needs of developing countries, research, development and exchange of information on:
  - (a) The best practicable technologies;

- (b) Possible alternatives to CFCs and CFC products;
- (c) Costs and benefits of relevant control strategies.

2. Each Party shall submit to the Secretariat a summary of activities conducted pursuant to the present article on a biennial basis.

#### ARTICLE VI: TECHNICAL ASSISTANCE

1. The Parties shall co-operate, taking into account in particular the needs of developing countries, in promoting, in the context of the provisions of article 4 of the Convention, technical assistance to facilitate participation in and implementation of this Protocol.

2. Any Party or Signatory to this Protocol in need of technical assistance in implementing it may submit a request to the Secretariat.

#### ARTICLE VII: SECRETARIAT FUNCTIONS

The Secretariat shall:

- (a) Arrange for and service meetings of the Parties;
- (b) Distribute to the Parties information on each Party's year of maximum use of CFCs in aerosols and the total amount of its use in that year, as reported by the Parties in accordance with article IV;
- (c) Prepare and distribute to the Parties regularly a report based on information received pursuant to articles IV and V;
- (d) Notify the Parties of any request for technical assistance received pursuant to article VI so as to facilitate the provision of such assistance to the extent possible;
- (e) Perform such other functions as may be assigned to it by the Parties.

#### ARTICLE VIII: MEETINGS OF THE PARTIES

1. The Parties shall hold meetings at regular intervals. The Secretariat shall convene the first meeting of the Parties within one year after the entry into force of this Protocol and in conjunction with a meeting of the Conference of the parties to the Convention, if a meeting of the latter is scheduled within that period.

2. Subsequent ordinary meetings of the Parties shall be held in conjunction with meetings of the parties to the Convention, unless otherwise decided by the Parties to the Protocol. Extraordinary meetings of the Parties may be held at such other times as may be deemed necessary by them, or at the written request of any of them, provided that, within six months of such a request being communicated to them by the Secretariat, it is supported by at least a third of the Parties.

3. The functions of the meetings of the Parties shall be:

- (a) To review implementation of this Protocol;
- (b) To establish where necessary guidelines or procedures for reporting of information as provided for in article IV and V;

- (c) To review requests for technical assistance provided for in article VI;
- (d) To review reports received from the Secretariat pursuant to article VII;
- (e) To reassess, pursuant to article III, the control measures provided for in article II;
- (f) To consider and adopt proposals for amendment of this Protocol;
- (g) To consider and adopt the budget for the implementation of this Protocol.

ARTICLE IX: FINANCIAL PROVISIONS

The expenditure required for the functioning of the Secretariat or other expenditure for the administration of this Protocol shall be charged against special contributions from the Parties to this Protocol exclusively.

ARTICLE X: RELATIONSHIP OF THIS PROTOCOL TO THE CONVENTION

1. The relevant provisions of the Convention with respect to any protocol shall apply to this Protocol.
2. The rules of procedure and financial rules adopted pursuant to article 6, paragraph 3 of the Convention shall apply to this Protocol, unless the Parties to the Protocol agree otherwise.

ARTICLE XI: SIGNATURE

This Protocol shall be open for signature at.....  
from ..... to ..... by signatories to the Convention.

ARTICLE XII: ENTRY INTO FORCE

1. This Protocol shall enter into force on the same date as the Convention enters into force, provided that there have been deposited nine instruments of ratification, acceptance, approval or accession to the Protocol. In the event that nine such instruments have not been deposited by the date of entry into force of the Convention, this Protocol shall enter into force on the thirtieth day following the date of deposit of the ninth instrument of ratification, acceptance, approval or accession to the Protocol submitted by any party to the Convention.
2. For the purpose of paragraph 1 any instrument deposited by an organization referred to in article 12 in the Convention shall not be counted as additional to those deposited by member States of such organization.
3. After the entry into force of this Protocol, any party to the Convention shall become a Party to this Protocol on the thirtieth day following the date of deposit of its instrument of ratification, acceptance, approval or accession.

ARTICLE XIII: AUTHENTIC TEXTS

The original of this Protocol, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

IN WITNESS WHEREOF THE UNDERSIGNED, BEING DULY AUTHORIZED TO THAT EFFECT, HAVE SIGNED THE PRESENT PROTOCOL,

DONE AT ..... THIS .....  
DAY OF .....

