REPORT OF THE FIFTEENTH SESSION OF THE IPCC
SAN JOSE, COSTA RICA, 15-18 APRIL 1999

ABBREVIATIONS USED

AOGCM	Atmosphere-Ocean General Circulation Model
CFC	Chlorofluorocarbon
COP	Conference of the Parties to the UNFCCC
DM	German Mark
HFC	Hydrofluorocarbon
JWG	Joint Working Group of IPCC and UNFCCC
PRSTSEQ	Policy-relevant Scientific, Technical, Socio-economic Question
TEAP	Technology and Economic Assessment Panel of the Montreal Protocol
SBSTA	Subsidiary Body for Scientific and Technological Advice of the COP
SPM	Summary for Policymakers
SRF	Swiss Franc
TAR	Third Assessment Report of the IPCC
TAR/WGx	Contribution of WGx to the TAR
TFB	Bureau of TFI
TFI	Task Force on National Greenhouse Gas Inventories of the IPCC
TGCIA	Task Group on Climate Scenarios for Impact Assessment of the IPCC
TSU	Technical Support Unit of TFI or WG
UN	United Nations
UNDP	UN Development Programme
UNEP	UN Environment Programme
UNFCCC	UN Framework Convention on Climate Change
WG	Working Group of the IPCC
WMO	World Meteorological Organization

1. OPENING OF THE SESSION (agenda item 1)

Dr. Robert T. Watson, Chairman of the IPCC, opened the session at 10:05 hours on Wednesday, 15 April 1999 in Hotel Corobíci, San José, Costa Rica.

The addresses of Prof. G.O.P. Obasi (along with a separate personal message wishing success for the session), Secretary-General of the World Meteorological Organization, and of Dr. Klaus Töpfer, Executive Director of the United Nations Environment Programme and Director-General of the United Nations Office in Nairobi, were read out. Mr. Michael Zammit Cutajar, Executive Secretary of the United Nations Framework Convention on Climate Change, also addressed the session.

The Inaugural Address was delivered by Her Excellency Elizabeth Odio, Vice President and Minister for Environment and Energy, of the Republic of Costa Rica.

The agenda as adopted is attached in Appendix A.

2. APPROVAL OF THE DRAFT REPORT OF THE FOURTEENTH SESSION (VIENNA, 1-3 OCTOBER 1998) (agenda item 2)

2.1 A new paragraph 5.2 was added, reading as follows:

5.2 With respect to the identification of policy-relevant scientific questions to be addressed in the Synthesis Report, the Chairman informed the Panel that there had been inputs from some governments, including the European Union, through the SBSTA. He requested further inputs; all the inputs would be taken into account in drafting the policy-relevant scientific questions for the consideration of the Panel at its Fifteenth Session.

2.2 With the above amendment, the draft report was adopted.

3. PROGRAMME & BUDGET FOR THE YEARS 2000-2002 (agenda item 3)

3.1 In the course of his presentation of the programme and budget, the Secretary announced the following pledges and receipts into the IPCC Trust Fund since the mailing of the relevant document:

Pledge

USA	$ 2,700,000	About SRF 3,780,000

Receipts

UK	£ 140,000	About SRF 320,000
Germany	DM 195,000	About SRF 158,000
UNFCCC	$ 350,000	About SRF 504,000.

3.2 The Panel adopted a revised budget for the year 1999 and a budget for the year 2000. The decision of the Panel is attached in Appendix B.

4. ACCEPTANCE OF THE ACTIONS OF THE JOINT SESSION OF WORKING GROUPS I & III (SAN JOSE, COSTA RICA, 12-14 APRIL 1999) (agenda item 3)

4.1 A document (IPCC-XV/Doc. 9b dated 16 April 1999) was distributed to the Panel. It listed the changes that would be made to the assessment report underlying the approved SPM to make the two consistent with each other. A copy of the document is attached in Appendix C.

4.2 The Panel accepted

a. the Summary for Policymakers (SPM) of the IPCC Special Report, Aviation and the Global Atmosphere, that was approved by the Joint Session;
b. the assessment in the IPCC Special Report, Aviation and the Global Atmosphere, underlying the SPM, that was accepted at the Joint Session.

4.3 A statement was made by the representative of the International Civil Aviation Organization (ICAO) on the completion of the Special Report. It is attached in Appendix D.

5. POLICY-RELEVANT SCIENTIFIC/TECHNICAL QUESTIONS FOR CONSIDERATION IN THE SYNTHESIS REPORT (agenda item 5)

5.1 The Panel amended the title to read "Synthesis Report: Policy-relevant scientific, technical and socio-economic questions".

5.2 The decision of the Panel on the scientific, technical and socio-economic questions (PRSTSEQs) to be considered in the Synthesis Report is attached in Appendix E. One delegation brought up the issue of nuclear safety in connection with question 8 but the Panel did not include the issue in the PRSTSEQs.

5.3 The preparation of the Synthesis Report would begin following the choice of the Writing Team. The Writing Team would be chosen by the Chairman, in consultation with the Co-Chairmen of the Working Groups. The IPCC Bureau would be informed of the composition of the Writing Team.

5.4 The draft SPM and the longer report of the Synthesis Report would undergo concurrent expert and government technical review for which 8 weeks would be allowed. The final drafts of the SPM and the longer report would be mailed 8 weeks before the session of the Panel at which their approval/adoption would be sought.

5.5 The final draft SPM (the draft that would be sent to governments for their consideration for action at the session of the Panel) of the Synthesis Report would be translated into the official UN languages.

6. PROPOSED AMENDMENTS TO THE IPCC PROCEDURES FOR PREPARATION, REVIEW, APPROVAL, ACCEPTANCE AND PUBLICATION OF ITS REPORTS (agenda item 6)

6.1 The Panel decided that the draft Report on Good Practice Guidance in Inventory Preparation and Uncertainty Management would be accepted by the Panel. The general question of agreeing on the IPCC methodologies and guidelines would be addressed at the time the Terms of Reference for the Task Force on National Greenhouse Gas Inventories are adopted.

6.2 The Panel authorized the Chairman, with the Secretary and the Chairman of the Ad-Hoc Group on Procedures, to make minor editorial changes to the draft Procedures to make the document internally consistent. It then adopted the Procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of its Reports.

7. IPCC – FCCC INTERACTION (agenda item 7)

7.1 The Panel was informed that three IPCC side events were planned for the upcoming SBSTA meeting on the Special Reports on aviation, technology transfer and emissions scenarios. A decision on the dates for the Sixth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change was awaited.

7.2 At a meeting of the IPCC/FCCC Joint Working Group meeting held earlier in the week, the JWG recognized the difficulty the IPCC faces in writing popular accounts of its conclusions. A suggestion was made that the sponsoring organizations, particularly UNEP, could undertake such a task.

7.3 With respect to the co-operation between the IPCC and the Technology and Economic Assessment Panel (TEAP) under the Montreal Protocol, the Panel was informed that the subject of the hydrofluorocarbons (HFCs), which are ozone-friendly (and hence can be used as substitutes for such substances as the CFCs) but not climate-change-friendly, would be dealt in the report of Working Group III in the TAR. This would be done in co-operation with the TEAP. In this connection, a TEAP/IPCC joint meeting of experts was being planned.

7.4 With respect to the Programme on National Greenhouse Gas Inventories, the Panel recalled that it had established a Task Force (TFI) with a Bureau (TFB). The TFB had been requested to guide the Programme until IPCC-XVI. The UNFCCC representative(s) would be invited to the meetings of the TFB. Such issues as the co-operation between the IPCC and SBSTA on the question of inventories would be addressed through the JWG.

7.5 The Panel was further informed that the UNFCCC Secretariat would be requesting COP-5 for an increase in the UNFCCC contribution to the IPCC Trust Fund.

8. IPCC – MONTREAL PROTOCOL INTERACTION (agenda item 8)

8.1 The agenda item was discussed in the context of agenda items 7 and 9.3. See paragraph 7.3 above.

9. PROGRESS OF ONGOING WORK (agenda item 9)

9.1 Working Group I: The first meeting of Lead Authors took place in Paris on 30 November – 2 December 1998. The chapter meetings of the Lead Authors for the TAR had been planned and were taking place. The Task Group on Climate Scenarios for Impact Assessment (TGCIA) was preparing the CD-ROM containing the data in the Data Distribution Centres. The TGCIA was also engaged in (i) the choice of climate scenarios that reflect the operation of various stabilization scenarios, (ii) the question of down-scaling the AOGCM outputs for use in impact assessments, (iii) promoting inter-comparison of regional models, (iv) the provision of training in the use of climate scenarios through activities such as the START and (v) updating the data in the Data Distribution Centres.

9.2 Working Group II: The first meeting of Lead Authors took place in Geneva on 5-8 January 1999. A zero-order draft of the TAR/WGII was circulating for informal review. Regional meetings in Malta (3-5 June 1999), Japan (21-23 June 1999), Morocco (2-6 August 1999), and Peru (4-6 August 1999) were planned to identify new and recent work on vulnerabilities to climate change in Small Island States, Asia, Africa and Latin America. Draft guidance papers on cross-cutting issues (Costing Methodologies; Decision Analysis Frameworks; Consistent Assessment and Reporting of Uncertainties; Development, Sustainability, Equity and Climate Change) had been prepared for consideration for application as appropriate by the Lead Authors of Working Groups II and III.

9.3 Working Group III: The first meeting of Lead Authors took place in Bilthoven, The Netherlands on 2-4 December 1998. Two Expert Meetings were scheduled on development, sustainability and equity (Colombo, 26-28 April 1999) and on costing methods (Tokyo, 29 June – 1 July 1999). One IPCC Workshop on Integrated Assessment Modelling took place in Kadoma, Zimbabwe on 22-25 November 1998. The issue of HFCs was being handled co-operatively with the TEAP (see also paragraph 7.3). The Working Group was also co-ordinating its efforts with the UNDP/World Energy Council/UN-DESA assessment on energy and sustainability.

9.4 The Special Reports on technology transfer, emissions scenarios and land use, land use change and forestry were on track. The Working Group Technical Support Units had collaborated and were collaborating in a productive manner on these reports and on the completed report on aviation.

9.5 Programme on National Greenhouse Gas Inventories: The Interim Bureau of the Task Force met on 29-30 March 1999 in Paris. The draft report on uncertainties and good practices in inventory management was progressing according to schedule. The TSU/TFI was expected to start functioning in Japan by mid-1999.

9.6 Special Report on Land Use, Land Use Change and Forestry: Dr. David Verardo who would provide the technical support in the preparation of the report was located in the TSU office of Working Group II. The Lead Authors had been chosen and the schedule called for the completion of the report in time for delivery to the SBSTA in mid-2000.

10. OTHER BUSINESS (agenda item 10)

10.1 Possible electronic distribution of the IPCC documentation for rapid dissemination was raised. All possible means of communication, taking into account the needs of the developing countries and the need for speed and cost savings, would be explored.

11. TIME AND PLACE OF THE NEXT SESSION (agenda item 11)

11.1 The Secretary would announce the time and place of the next session.

12. CLOSING OF THE SESSION (agenda item 12)

12.1 The session closed at 1850 hours on Saturday, 18 April 1999.

12.2 The list of attendees is attached in Appendix F.

WMO

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

UNEP

INTERGOVERNMENTAL PANEL
ON CLIMATE CHANGE

FIFTEENTH SESSION
San Jose, 15-18 April 1999

IPCC-XV/Doc. 2
(24.II.1999)

ENGLISH ONLY

ANNOTATED PROVISIONAL AGENDA

Delegates can register from 0800 hours on Thursday, 15 April 1999 onwards.

1. OPENING OF THE SESSION (IPCC-XV/Doc. 1, IPCC-XV/Doc. 2)

The Chairman will open the session at 1000 hours on Thursday, 15 April 1999 in Hotel Corobicí-Melia in San Jose, Costa Rica.

Simultaneous interpretation in Arabic, Chinese, English, French, Russian and Spanish will be provided during the plenary meetings of the session. All documentation will be in English only.

It is suggested that the working hours be from 1000 to 1300 hours for the morning meeting and from 1500 to 1800 hours for the afternoon meeting with breaks as decided by the Chairman.

1.1 Opening of the session by Dr Robert T. Watson, Chairman of the IPCC

1.2 Address of Dr Klaus Töpfer, Executive Director of the United Nations Environment Programme & Director-General of the United Nations Office in Nairobi, read by Dr Ricardo Sanchez, UNEP Regional Director for Latin America and the Caribbean

1.3 Address of Prof. G.O.P. Obasi, Secretary-General of the World Meteorological Organization, read by Dr D.D.C. Don Nanjira of the WMO

1.4 Address by Mr Michael Zammit Cutajar, Executive Secretary of the United Nations Framework Convention on Climate Change

1.5 Inaugural Address by Her Excellency Elizabeth Odio, Vice President of the Republic of Costa Rica and the Minister for Environment and Energy

1.6 Vote of thanks by Dr N. Sundararaman, Secretary of the IPCC

1.7 Opening remarks by Dr Robert T. Watson, Chairman of the IPCC

1.8 Approval of the agenda

The agenda may be amended at any time during the session.

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2. APPROVAL OF THE DRAFT REPORT OF THE FOURTEENTH SESSION (IPCC-XV/Doc. 3)

3. PROGRAMME & BUDGET FOR THE YEARS 2000–2002 (IPCC-XV/Doc. 4)

4. ACCEPTANCE OF THE ACTIONS OF THE JOINT SESSION OF WORKING GROUPS I & III (SAN JOSE, 12-14 APRIL 1999) (IPCC-XV/Doc. 5a, IPCC-XV/Doc. 5b)

5. POLICY-RELEVANT SCIENTIFIC/TECHNICAL QUESTIONS FOR CONSIDERATION IN THE SYNTHESIS REPORT (IPCC-XV/Doc. 6)

It may be recalled that the Panel is to approve the policy-relevant scientific/technical questions. The decision adopted at the Thirteenth Session (Maldives, 22 & 25-28 September 1997) states: "The IPCC agrees that the IPCC Chairman and the Working Group Co-chairs will develop a list of key policy-relevant scientific questions in consultation with the President of the Conference of the Parties (COP) and the chairs of the subsidiary, and other, bodies of the COP, using the mechanism of the IPCC/FCCC Joint Working Group. The list will be circulated to Governments for comment and the IPCC will approve the list at its Fourteenth Session. This list can be revised at a later date under the responsibility of the IPCC Chair, and with the approval of the IPCC."

The Chairman will submit the list of questions for discussion and approval.

6. PROPOSED AMENDMENTS TO THE IPCC PROCEDURES FOR PREPARATION, REVIEW, APPROVAL, ACCEPTANCE AND PUBLICATION OF ITS REPORTS (IPCC-XV/Doc. 7)

It may be recalled that the Panel amended the Principles Governing its Work at the Fourteenth Session (see IPCC-XV/Doc. 3).

Proposed amendments to the Procedures for Preparation, Review, Approval, Acceptance and Publication of the IPCC Reports were circulated to Governments prior to the Fourteenth Session, when action was deferred on the item. Since then, revisions were made to the proposed amendments by the Ad Hoc Group on Principles and Procedures. The revised proposed amendments were circulated to Governments for further comments.

The Chairman of the Ad Hoc Group, Mr David Warrilow, will summarize the Government comments received.

The Chairman will invite the Panel to discuss the proposals and amend the Procedures if and as necessary.

7. IPCC – FCCC INTERACTION

A meeting of the IPCC/FCCC Joint Working Group is planned during the session. The chairman will brief the Panel on the activities of the JWG. He may invite a representative of the FCCC to add his/her remarks.

8. IPCC – MONTREAL PROTOCOL INTERACTION

The issue of HFCs, which are ozone-friendly but not climate-friendly, will be addressed in the report of Working Group III in the TAR in co-operation with the Technology and Economic

Assessment Panel under the Montreal Protocol. A joint meeting of experts is planned in his regard. The Panel will be briefed on the status of this effort.

9. PROGRESS OF ONGOING WORK

9.1 Working Group I
9.2 Working Group II
9.3 Working Group III
9.4 Programme on National Greenhouse Gas Inventories including the establishment of the Interim Bureau of the Task Force on National Greenhouse Gas Inventories and the Technical Support Unit for the Task Force
9.5 Special Report on Land Use, Land Use Change and Forestry.

The Co-Chairs of the Working Groups will brief the Panel on their respective ongoing activities including the preparation of Special Reports. The Head of the IPCC/OECD/IEA Unit on Greenhouse Gas Inventories and the representative of the Institute for Global Environmental Strategies (IGES) in Japan will brief the Panel on item 9.4. The Technical Support Unit for the Task Force will be located in the IGES. The Chairman of the IPCC will brief the Panel on item 9.5.

10. OTHER BUSINESS

11. TIME AND PLACE OF THE NEXT SESSION

It is suggested that the Sixteenth Session take place on 1-6 May 2000 in a place to be decided. The agenda will focus on approving/accepting the SPM/underlying assessment in the Special Report on Land Use, Land Use Change and Forestry and on accepting the actions of Working Group III on the Special Report on Emissions Scenarios and the Special Report on Technology Transfer.

12. CLOSING OF THE SESSION

The session is expected to close at 1800 hours on Sunday, 18 April 1999.

OMM

WMO

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

PNUE

UNEP

INTERGOVERNMENTAL PANEL
ON CLIMATE CHANGE

FIFTEENTH SESSION
San Jose, 15-18 April 1999

IPCC-XV/Doc. 4, Rev. 1
(18.IV.1999)

ENGLISH ONLY

BUDGET FOR 2000, FORECAST BUDGET FOR 2001 AND INDICATIVE BUDGET FOR 2002

(Submitted D. Reifsnyder, the Co-Chair of the IPCC Financial Task Team)

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Decision on the IPCC Work Programme and Budget
(Fifteenth Session, San Jose, 15-18 April 1999)

The IPCC Financial Task Team met on seven occasions during the Fifteenth Session of the IPCC with representatives from each of the IPCC Working Groups and participation of the IPCC Chair and the IPCC Secretariat. Based on these discussions and the resulting recommendations of the Co-Chair of the IPCC Financial Task Team, the Panel meeting in plenary:

1) Adopted the revisions to the budget for 1999 contained in the attached Table 1, and took note of the information contained in the attached Tables 2 and 3;

2) Adopted the budget for 2000 contained in the attached Table 4 and took note of the information contained in the attached Tables 5 and 6;

3) Took note of the information on the National Greenhouse Gas Inventories Programme in the attached Table 7;

4) Took note of the budget forecast for 2001 contained in the attached Table 8;

5) Requested the Secretariat, in consultation with the IPCC Financial Task Team, to prepare an indicative budget for 2002 and transmit it to governments as soon as possible;

6) Requested the IPCC Secretariat to ask Governments to provide information on the appropriate authorities within their governments having responsibility for financial issues with respect to the IPCC to ensure timely and accurate communication of the IPCC's needs for financial contributions;

7) Took note of the status of contributions contained in IPCC-XV/Doc. 4 and requested the Secretariat to update and circulate to Governments this information by 30 June 1999, and thereafter to provide this information at 6 month intervals;

8) Welcomed the comparison of actual versus budgeted expenditures for the previous year contained in IPCC-XV/Doc.4 and requested the Secretariat to include such a comparison for the preceding year in each proposed budget;

9) Requested the Secretariat to develop a specific proposal for an outreach programme, including its financial implications, for consideration by the IPCC Bureau at its Nineteenth Session;

10) Stressed that additional financial resources are urgently needed by the IPCC to continue preparation of the Third Assessment Report (TAR) and to support the work of the United Nations Framework Convention on Climate Change, in particular through preparation of the Third Assessment Report (TAR) and several Special Reports as well as to continue its work on the National Greenhouse Gas Inventories Programme;

11) Urged governments and others in a position to do so to contribute early and generously to the WMO/UNEP IPCC Trust Fund to enable the IPCC to continue its work programme, to increase participation of experts from developing countries and economies in transition, and to ensure that the IPCC is able to respond to the needs of the Framework Convention on Climate Change (UNFCCC) in a timely manner;

12) Agreed that the IPCC continues to provide a critical mechanism for improving the world's understanding of climate change, for promoting capacity-building among scientific, technical and socio-economic experts from developed and developing countries and countries with economies in transition, and for establishing a sound scientific basis from which governments may make policy decisions;

13) Decided, therefore, to explore additional sources of funding, for example from the Global Environment Facility, that would contribute to the IPCC's efforts to promote capacity-building with respect to developing countries and economies in transition and to promote public awareness of climate change.

Table 1
BUDGET FOR 1999

Activity	Amount (CHF)
Joint Working Group Meetings	45,000
National GHG Inventories	315,000
IPCC XV, Bureau 18, WG I/III (6 days) 4/1999	1,134,600
Bureau 19, (2 days) 12/1999	176,390
Lead Author Meetings	
WG-I	481,950
WG-II	1,530,900
WG-III	850,500
SR Land Use Change/Forestry	680,400
SR Technology Transfer	374,200
SR Emissions Scenarios	85,050
Review Editors	
WG-I	0
WG-II	107,730
WG-III	0
SR Land Use Change/Forestry	28,350
SR Technology Transfer	147,420
SR Emissions Scenarios	22,680
Expert Meetings	
WG-I	255,150
WG-II	283,500
WG-III	481,950
Translation & Publication (6 languages)	
SR Aviation	180,000
Support to developing country Co-Chairs	150,000
Secretariat	600,000
Outreach	40,000
TOTAL	**7,970,770**

Table 2
BUDGET DETAILS FOR 1999

Activity	Purpose	DC/EIT support	Other expenditure	TOTAL
Meetings of the JWG	Co-ordinate between IPCC and UNFCCC	42,600	2,400 (Secretary of the IPCC)	45,000
National GHG Inventories	On-going		315,000	315,000[1]
IPCC XV, Bureau 18, WG/WGIII joint session (6 days, April 1999)	Approve/accept SR-Aviation Approve SyR- LAs Amend Procedures, Approve SyR. Qs	894,600 (115 DC/EIT, 17 Bur., 10 LA)	240,000	1,134,600
Bureau 19, (2 days, Dec.1999)		96,390 (17 Bur.)	80,000	176,390

[1] Detailed information is contained in Table 7

Meetings of Lead Authors WG-I WG-II WG-III Special Reports Sinks Tech. Transfer Em. Scenarios	Prepare TAR Prepare/complete SRs	 481,950 (85 journeys) 1,530,900 (270 journeys) 850,500 (150 journeys) 680,400 (120 journeys) 374,200 (66 journeys) 85,050 (15 journeys)		4,003,000
Review Editors WG-I WG-II WG-III Special Reports Sinks Tech. Transfer Em. Scenarios	Prepare TAR Prepare/complete SRs	 0 (0 journeys) 107,730 (19 journeys) 0 (0 journeys) 28,350 (5 journeys) 147,420 (26 journeys) 22,680 (4 journeys)		306,180
Expert Meetings WG-I Emissions Scenarios GWPs TGCIA **SUBTOTAL** WG-II Regional meetings (Africa, Asia, Latin America, Small Island States) **SUBTOTAL** WG-III Impacts of Annex I Actions Cl. Change, Development, Sustainability & Equity		 (10 journeys) (15 journeys) (20 journeys) **255,150** (50 journeys) **283,500** (10 journeys) (15 journeys)		1,020,600

Social & Behavioral Aspects of Decision-making		(10 journeys)		
Non-Energy Non-CO_2 Mitigation		(10 journeys)		
Costing Methodologies in Mitigation, Adaptation & Impacts		(10 journeys)		
Economic Instruments to Mitigate Climate Change		(10 journeys)		
Mitigation Scenarios		(10 journeys)		
TEAP/IPCC		(10 journeys)		
SUBTOTAL		**481,950**		
Translation & Publication SPM (6 languages)				180,000
Aviation			180,000	
Support to developing country Co-Chairs			150,000	150,000
Secretariat			600,000	600,000
Outreach			40,000	40,000
TOTAL		**6,363,370**	**1,607,400**	**7,970,770**

Table 3
CONTRIBUTIONS NEEDED IN 1999

Item	Amount (CHF)
Total budget for 1999 (from Table 1)	7,970,770
Less carry-over from 1998	966,463
Less contributions received by 1 April 1999	1,212,000
Less WMO contribution	190,000
Less UNEP contribution ($ 110,000)	160,000
Less UN FCCC contribution ($ 400,000)	560,000
FUNDS NEEDED	**4,882,307**

Table 4
BUDGET FOR 2000

Activity	Amount (CHF)
Joint Working Group Meetings	45,000
National GHG Inventories	575,000
WG III Session, 7 days	1,144,500
Bureau 20, 2 days	152,040
IPCC XVI, 7 days	1,031,100
Bureau 21, 1 day	42,000
WG I session, 5 days	947,100
Lead Author/Review Editors Meetings	
WG-I	708,750
WG-II	567,000
WG-III	963,900
SR Land Use Change/Forestry	283,500
Other expenditures	36,000
Expert Meetings	
WG I	113,400
WG II	226,800
WG III	231,750
Translation & Publication (6 languages)	
SR Land Use	180,000
SR Emissions Scenarios	180,000
SR Technology Transfer	204,000
Support to developing country Co-Chairs	150,000
Outreach	100,000
Secretariat	620,000
TOTAL	**8,501,840**

Tab le 5
BUDGET ESTIMATE FOR 2000

Activity	Purpose	DC/EIT support	Other expenditure	TOTAL
JWG Meetings	Co-ordinate between IPCC and UNFCCC	42,600	2,400 (Secretary of the IPCC)	45,000
National GHG Inventories	On-going	575,000		575,000 [1]
WGIII session 7 days, *March 2000 Place TBD*	Approve/Accept SRT, SRE. TAR progress	850,500 (120 DC/EIT, 5 Bur., 25 LA/RE)	294,000 (interpretation etc.)	1,144,500
Bureau-20 (back-to-back with WG III), 2 days	Various	68,040 (12 Bur.)	84,000 (interpretation etc.)	152,040

[1] Detailed information is contained in Table 7

IPCC XVI 7 days, *1-7 May 2000* *Place TBD* Bureau 21 (back-to-back with IPCC-XVI) 1 day	Approve/Accept SRL. Accept WG III actions. Progr.amme on National GHG Inventories. Adopt 2001 budget. Other. Various	737,100 (100 DC/EIT, 17 Bur., 13 LA/RE)	294,000 (interpretation etc.) 42,000 (Interpretation etc.)	1,031,100 42,000
WG I session 5 days, *Jan. 2001* *Place TBD*	Approve/Accept WG I-TAR	737,100 (100 DC/EIT, 5 Bur., 25 LA/RE)	210,000 (interpretation etc.)	947,100 [1]
Meetings of Lead Authors and Review Editors WG-I WG-II WG-III Special Report SRL	 Prepare TAR Prepare TAR Prepare TAR Complete	 708,750 (125 journeys) 567,000 (100 journeys) 963,900 (170 journeys) 283,500 (50 journeys)	36,000 [2]	2,559,150
Expert Meetings WGI TGCIA WG II Adaptation and Mitigation Vulnerability WG III Development, Sustainability and Equity *May 2000,* *Place TBD* 2nd Meeting on Annex I actions Integrated Assessment in Latin America	For TAR, lack of regional literature	 113,400 (20 journeys) 113,400 (20 DC/EIT) 113,400 (20 DC/EIT) 85,050 (15 DC/EIT) 56,700 (10DC/EIT) 85,050 15 DC/EIT)	4,950	571,950

[1] Budgeted in 2000 because expenditures will occur this year.

[2] These costs are likely to be incurred for the meetings of Lead Authors held in developing countries. An average cost per meeting of 12,000, based on the 1998 experience, and 3 meetings in developing countries are assumed.

Translation & Publication SPM (6 languages): SRL SRE SRT			 180,000 180,000 204,400	564,000
Outreach	Information seminars on SRE, SRT, SRL		100,000	100,000 [1]
Support to developing country Co-Chairs			150,000	150,000
Secretariat			620,000	620,000
TOTAL		**6,100,490**	**2,401,350**	**8,501,840**

Table 6
CONTRIBUTIONS NEEDED IN 2000

Item	Amount (CHF)
Total budget for 2000 (from Table 4)	8,501,840
Less WMO contribution	190,000
Less UNEP contribution ($ 110,000)	160,000
Less UN FCCC contribution ($500,000)	700,000
FUNDS NEEDED	**7,451,840**

[1] Contingent on a Decision of the IPCC Bureau

Table 7
IPCC NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME

Activity	Budget (CHF)			
	1999	2000	2001	2002
1. Methods Assessment				
1.1 Good Practice/Managing Uncertainty [1]				
• Support for 17 participants from DC/EIT per meeting	416,000	193,000		96,000[2]
• Meeting Support	137,000			
1.2 Land Use Change and Forestry [3]				
• Support for 17 participants from DC/EIT per meeting		96,000	193,000	193,000
1.3 Database on Emissions Factors [4]		Note 4		
1.4 Other improvement of Methodologies [5]				
• Support for 17 participants from DC/EIT per meeting		96,000	96,000	96,000
1.5 Response to Requests from SBSTA – e.g. Articles 5, 7, 8 [6]				
• Support for 17 participants from DC/EIT per meeting		50,000	193,000	193,000
2. Translation, Dissemination, and Training				
2.1 Translation [7]	6,000	Note 7		
2.2 Visiting Scientist at IGES [8]		Note 8		
2.3 Dissemination through Web [9]		Note 9		
2.4 Outreach to Developing Countries [10]		Note 10		
3. Core Support [11]	357,500	Note 11		
4. Miscellaneous				
5.1 Three Task Force Bureau Meetings per year				
• Support for participants from DC/EIT	110.000	120,000	120,000	120,000
5.2 Participation in other meetings by TSU Staff	12,500	Note 9		
5.3 Support for Developing Country Co-Chair[12]	20,000	20,000	20,000	20,000
5.4 Move to Japan	43,000[13]	N/A		
Total	**1,102,000**	**575,000**	**622,000**	**718,000**
Less funds at the OECD	**787,000**			
Request from WMO/UNEP IPCC Trust Fund	**315,000**	**575,000**	**622,000**	**718,000**

[1] Four sectoral expert meetings and one expert meeting on Managing Uncertainty and QA/QC in 1999, and two meetings in 2000.
[2] Review of Good Practice Guidance including one expert meeting.
[3] Further development of the methodologies for LUCF (i.e. related to article 3.3, 3.4 and 3.7) to start in 2000 on the basis of needs identified in the Special Report on LUCF and taking into account existing work on Harvested Wood Products. One expert meeting is budgeted for 2000 and two expert meetings for 2001 and 2002.
[4] The TSU will initiate the work on the database in 2000. An expert meeting on emission factors is not currently included in the budget but that may be needed.
[5] Follow up of the conclusions of the expert meeting on Feedback on the use of the IPCC 1996 Guidelines and issues arising from good practice (New halogenated gases, new sources and emissions at high altitude).
[6] Allowance for possible support of IPCC experts in SBSTA activity at the request of FCCC and/or for an IPCC expert meeting on these issues back to back with SBSTA in 2000. Further methodological work in 2001 and 2002 following the decisions at COP 6.
[7] Full translation of inventory documents at a professional rate would be very expensive; countries are encouraged to support this activity.
[8] Japan will undertake support within available resources of the Japanese Special Fund and other available resources to fund a visiting scientist at the TSU.
[9] Will be covered by the Japanese Special Fund.
[10] This issue has been raised at the JWG.
[11] Covered by the Japanese Special fund including 4 professionals, 2 secretaries, office facilities and its maintenance and travel budget for the staff; further funds for communications and some funds for i.e. consultancy activities for the TSU as has thus far has been supported through the TSU at the OECD.
[12] Travel , telephone, on site secretarial support
[13] Includes 3 trips to Japan

Table 8
BUDGET ESTIMATE FOR 2001

Activity	Purpose	DC/EIT support	Other expenditure	TOTAL
JWG Meetings	Co-ordinate between IPCC and UNFCCC	42,600	2,400 (Secretary of the IPCC)	45,000
National GHG Inventories	On-going	622,000		622,000[1]
WGII session 5 days *Feb/Mar 2001, Place TBD*	Approve/Accept WG II-TAR	850,500 (100 DC/EIT, 5 Bur., 45 LA/RE)	210,000 (Interpretation etc.)	1,060,500
WG III session, 5 days, *Feb/Mar 2001 Place TBD*	Approve/Accept WG III-TAR	708,750 (100 DC/EIT, 5 Bur., 20 LA/RE)	210,000 (Interpretation etc.)	918,750
Bureau-22 (Back-to-back with IPCC XVII, 2 days) *May/Jun 2001,Place TBD*	Various	0 (see the row below)	84,000 (Interpretation etc.)	84,000
IPCC XVII 6 days *May/Jun 2001, Place TBD*	Accept WG actions. Approve/Accept Synthesis Report	737,100 (100 DC/EIT, 17 Bur., 13 LA/RE)	252,000 (Interpretation etc.)	989,100
Bureau-23 1 day, TBD	Various	96,390 (17 Bur.)	42,000	138,390
Meetings of Lead Authors and Review Editors IPCC	 Prepare Synthesis Report	 396,900 (70 journeys)		396,900
Expert Meetings WG I/WG II TGCIA WG I/WG II/WG III	 Work Programme for the Fourth Assessment Application & Interpretation Emissions Scenarios for the Fourth Assessment	 113,400 (20 journeys) 85,050 (15 DC/EIT)		198,450
Outreach	Information seminars on TAR findings		250,000	250,000[2]
Translation of final draft of Synthesis Report Translation & Publication (6 lang.) Synthesis Report WG I - TAR WG II - TAR WG III - TAR			60,000 600,000 200,000 200,000 200,000	1,260,000
Support to developing country Co-Chairs			150,000	150,000
Secretariat			620,000	620,000
TOTAL		**3,652,690**	**3,080,400**	**6,733,090**

[1] Detailed information is contained in Table 7
[2] Contingent on a Decision of the IPCC Bureau

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INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

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INTERGOVERNMENTAL PANEL
ON CLIMATE CHANGE

IPCC-XV/Doc. 9b
(16.IV.1999)

IPCC FIFTEENTH SESSION
San Jose, 15-18 April 1999

ENGLISH ONLY

IPCC SPECIAL REPORT:

AVIATION AND THE GLOBAL ATMOSPHERE

CHANGES TO THE REPORT

(Submitted by the Co-Chairs of Working Groups I and III)

Changes to the underlying report consistent with the approved Summary for Policymakers, excluding minor corrections and editorial changes which may be required for consistency, clarity and accuracy.

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RECORD OF CHANGES BY CHAPTER

Changes required to make the underlying report consistent with the approved Summary for Policymakers, excluding minor corrections and editorial changes which may be required for consistency, clarity and accuracy.

Figures in the underlying chapters will, where necessary be made consistent with those in the Summary for Policymakers

Chapter 1

Add ", partly as a result ofchanges in the hydrological cycle," between "...face new climatic stresses..." and "...and many could decline or fragment..." (page 2, line 18 of the FinalGovernment Distribution draft)

Chapter 2

No changes

Chapter 3

Old text in Section 3.7.2, page 37, and Table 3-9:

For an optical depth of 0.3, the best-estimate value of the global radiative forcing in 2050 (scenario Fa1) is 0.10 W m^{-2}. The uncertainty range is a little larger than in 1992 and estimated to amount to a factor of 4. Hence, the likely range of forcing extends from 0.03 to 0.4 W m^{-2} (see Table 3-9). The forcing for other scenarios has not been computed in detail but rough estimates scale with the fuel consumption. The climatic consequences of this forcing are discussed in Chapter 6. The amount and effects of additional aviation-induced cirrus-clouds cannot be assessed because we have no information on future cirrus trends in air traffic regions. The assessment of the other indirect effects is beyond the scope of present understanding.

Table 3-9: Global radiative forcing by contrails and indirect cloud effects in 1992 and 2050 (Scenario Fa1). No entry indicates insufficient information for a best-estimate value.

1992 Radiative forcing	Best estimate	Range with 2/3 probability	Status of understanding
Line-shaped contrail-cirrus	0.02 W m^{-2}	0.005 to 0.06 W m^{-2}	fair
Additional aviation-induced cirrus-clouds	-----	> 0, up to an order of 0.04 W m^{-2}	poor
Other indirect cloud effects	-----	either sign, unknown magnitude	very poor
2050 Radiative forcing			
Line-shaped contrail-cirrus	0.10 W m^{-2}	0.03 to 0.4 W m^{-2}	fair
Additional aviation-induced cirrus-clouds	-----	> 0, possibly larger than due to the contrails	very poor
Other indirect cloud effects	-----	either sign, unknown range	very poor

New text for same paragraph in 3.7.2 and for Table 3-9, as of 14 April 1999, 1.40 p.m.:

For an optical depth of 0.3, the best-estimate value of the global radiative forcing in 2050 (scenario Fa1) is 0.10 W m^{-2}. The uncertainty range is a little larger than in 1992 and estimated to amount to a factor of 4. Hence, the likely range of forcing extends from 0.03 to 0.4 W m^{-2} (see Table 3-9). The forcing for other scenarios has not been computed in detail but rough estimates scale with the fuel consumption. The climatic consequences of this forcing are discussed in Chapter 6.

An estimate of the range of aviation-induced cirrus cloudiness in 2050, as required for this assessment, is not available in the scientific literature. For 1992, a range for the best-estimate of the additional aviation-induced cirrus-clouds was derived from decadal trends in high fuel-use regions (0 - 0.2% global cover; Section 3.5.1.5). For the 2050 time period, a different approach is required. Observed contrail frequencies and trends in cirrus occurrence have been found to correlate with aviation fuel consumption (see Figures 3-14 and 3-18). Therefore, the aviation-induced cirrus cloudiness between 1992 and 2050 is projected to grow in proportion to the total aviation fuel consumption in the upper troposphere. This fuel consumption grows by a factor of 4 between 1992 and 2050 in scenario Fa1. Hence the best-estimate of additional global cirrus cover in 2050 would range from 0 to 0.8%. For the same radiative sensitivity as in 1992, the associated radiative forcing could be between 0 and 0.16 W m^{-2} or up to 1.6 times the value given for line-shaped contrail cirrus in 2050 (see Table 3-9). The forcing could be outside this range if future aviation causes strong changes in the optical properties of the cirrus clouds. Saturation effects (Sausen et al., 1999) will likely limit any increase in cirrus cover in heavy air traffic regions. Because of these uncertainties the status of understanding of radiative forcing from additional aviation-induced cirrus-clouds in 2050 is very poor. The assessment of the other indirect effects (Section 3.6.5) is beyond the scope of present understanding.

Table 3-9: Global radiative forcing by contrails and indirect cloud effects in 1992 and 2050 (Scenario Fa1). No entry indicates insufficient information for best-estimate values.

1992 Radiative forcing	Best estimate or range	Uncertainty range with 2/3 probability	Status of understanding
Line-shaped contrail-cirrus	0.02 W m^{-2}	0.005 to 0.06 W m^{-2}	fair
Additional aviation-induced cirrus-clouds	0 - 0.04 W m^{-2}	-----	poor
Other indirect cloud effects	-----	either sign, unknown magnitude	very poor
2050 Radiative forcing			
Line-shaped contrail-cirrus	0.10 W m^{-2}	0.03 to 0.4 W m^{-2}	fair
Additional aviation-induced cirrus-clouds	0 - 0.16 W m^{-2}	-----	very poor
Other indirect cloud effects	-----	either sign, unknown range	very poor

Minor Changes in Chapter 3, as of 14 April 1999, 1.40 p.m.:

Executive Summary of Chapter 3, bullet 7:

- Persistent contrails often develop into more extensive contrail cirrus in ice-supersaturated air masses. Ice particles in such persistent contrails grow by uptake of water vapor from the surrounding air. The area of the Earth covered by persistent contrails is controlled by the global extent of ice-supersaturated air masses and the number of aircraft flights in those air masses. Present contrail cover will increase further as air traffic increases. The properties of the persistent contrails depend on the aerosol formed in the exhaust plumes. Regions of ice-supersaturation vary with time and location and are estimated to cover an average of 10% to 20% of the Earth surface at mid-latitudes. Ice-supersaturation in these regions is often too small to let cirrus form naturally so that aircraft act as a trigger to form cirrus clouds.

Executive Summary of Chapter 3, bullet 9:

- The aviation-induced aerosol present in exhaust plumes and accumulated in the background atmosphere may indirectly impact cirrus cloud cover or other cloud properties throughout the atmosphere. Observations and models are not yet sufficient to quantify the aerosol impact on cirrus cloud properties.

Last sentences at end of Section 3.5.1.5:

This value is about 3 times the currently computed linear-contrail cover of 1.4% in those areas and is equivalent to about a 0.3% cover of the Earth surface, 0.2% more than for line-shaped contrails. If no counteracting process took place that reduced cloudiness over this same period, then this value gives an upper bound for total aviation-induced cloudiness.

Chapter 4

No changes

Chapter 5

Changes Made to Chapter 5 as a Result of Costa Rica Meeting

1. In three locations (Executive Summary, Section 5.4.2.3, Section 5.5) the revised chapter references changes in erythemal irradiance derived from observed ozone trends.

Reasons: These numbers were added to Chapter 5 to be consistent with changes made to the SPM at the meeting. The numbers are from the new WMO/UNEP Ozone Assessment.

2. A reference to the new WMO/UNEP Ozone Assessment was added in accordance with 1.

3. In section 5.4.2.4 the second and third paragraphs have been slightly modified to bring them into line with more recent information that is now in Chapter 3, as follows:

Original

"To estimate the effects of persistent contrails on ground-level UV, calculations assume (consistent with the maxima in Figure 3-16) 10% sky coverage at an altitude of 11 km. The scattering optical thickness of contrails varies from 0.1 to 0.5. This spread encompasses the range of reasonable values. For latitude 45°N, summer, local noon conditions, the contrail optical thickness of 0.1 corresponds to a reduction in UV_{ery} of less than 0.1% relative to clear skies; an optical thickness of 0.5 leads to a reduction of less than 0.5%."

The observed trends in cirrus presented in Chapter 3 include the effects of aviation, as well as any other influences that may be operative. The estimated response of UV_{ery} to trends in the cirrus background is based on the following assumptions: The cirrus have a scattering optical thickness of 1.0 and 23% of the land area is covered by cirrus at an altitude of 11km. Starting from this reference condition, a 3% increase in cirrus coverage, appropriate to the United States for the decade 1971–81 (Table 3-5), reduces UV_{ery} by less than 0.3% for latitude 45°N, local noon, in summer. Over land areas of the globe removed from major air traffic, the correspondoing increase in cirrus coverage of 0.6% (Table 3-5) leads to a decrease in UV_{ery} of less than 0.05%.... [as before]"

Replacement

"To estimate the effects of persistent contrails on ground-level UV, calculations assume a 5% area coverage, appropriate to the local maximum over the eastern USA (section 3.4.3), and a contrail optical thickness of 0.3. For latitude 45°N summer, local noon, this scenario leads to a reduction in UV_{ery} of 0.2% relative to clear skies. If persistent contrail coverage were to increase to 10%, the corresponding reduction in UV_{ery} would be 0.4%.

The observed trends in cirrus presented in Chapter 3 include the effects of aviation, as well as any other influences that may be operative. The estimated response of UV_{ery} to trends in the cirrus background is based on the following assumptions: The cirrus have a scattering optical thickness of 0.3 and initially 23% of the land area is covered by cirrus at an altitude of 11km. Starting from this condition, an increase of 3.5% per decade in the land area covered by

cirrus, appropriate to the USA in spring (Figure 3-19), leads to a decline in UV_{cry} of approximately 0.1% per decade for local noon at latitude 45°N.... [as before]"

Chapter 6

Chapter 6 Changes in Response to SPM Revisions

New text is **bold.**

Executive Summary

Bullet #3
End of the bullet is now:
"Changes in "natural" cirrus clouds caused by aircraft may result in negligible of potentially large radiative forcing, **an estimate could fall between 0 and 0.04 Wm-2.** Uncertainty estimates, typically ... the range shown. **The uncertainty estimate for the total radiative forcing (without additional cirrus clouds) is calculated as the square root of the sums of the squares of the upper and lower ranges of the individual components."** (end of bullet)

Bullet #5
middle of bullet reads
"... range for aircraft-induced radiative frocing **(without additional cirrus clouds)** from +0.13 to +0.28 ..."
end of bullet reads
"... result in a range of **total** radiative forcing **(without additional cirrus clouds)** from +0.4 to +0.6 Wm-2."

Bullet #6
end of bullet reads
"...and shifting of routes. **An estimate for the radiative forcing from additional cirrus could fall between 0 and 0.16 Wm-2."**

Table 6-2, page 30
Aviation Fal Components
line Indirect clouds
replace "not evaluated" by "**no best estimate available**"

Figure 6-14b
use Figure 2a of SPM

Figure 6-15b
use Figure 2b of SPM

Figure 6-16, caption
end caption now reads
"... of total radiative forcing **(without additional clouds).**"

Section 6.4.3, paragraph 2 , page 17
end of paragraph now reads

"... comparable to contrail RF. **The magnitude of this RF remains very uncertain and it is included in Tables 6-1 and 6-2. An estimate could fall between 0 and 0.04 Wm-2."**

Section 6.4.4, paragraph 4, page 17
insert new paragraph
"The radiative forcing from additional cirrus clouds in 2050 is even more uncertain than for 1992 (see Chapter 3). An estimate could fall between 0 and 0.16 Wm-2 for the 2050 scenario FESGa (tech 1) scenario."

Section 6.6.1, paragraph 1, page 21
end of paragraph now reads
"A caveat here is that we are unable to derive **a best estimate for** the indirect effects from aircraft on "natural" clouds; these effects might be negligible or be comparable to that of contrails. Thus, for 1992 our best estimate is that aviation causes a RF of approximately +.048 Wm^{-2} **(not including the RF from additional clouds)** and is responsible ... alone)."

Section 6.6.1, paragraph 2, page 21
beginning of paragraph now reads
"Bar charts for the 2050 atmosphere ... our best estimate is that aviation RF grows to about +0.19 Wm-2 **(not including the RF from additional clouds),** which is 5% of ... "

Section 6.6.2, paragraph 2, page 21
beginning of paragraph now reads
"Uncertainties is estimating ... best value) **and a description ("good", "fair", "poor", "very poor")** of the level ..."

Section 6.6.2, paragraph 4, page 22
add at the end of the paragraph
"The RFs from additional clouds are highly uncertain and no probability range could be provided."

Section 6.6.2, paragraph 5, page 22
beginning of the paragraph no reads
"The RF uncertainties ... Gaussian statistics. **The uncertainty ranges for the totals in Figures 6-14b and 6-15-5 do not represent a 2/3 probability range like for the individual components. The uncertainty estimate for the total radiative forcing (without additional cirrus clouds) is rather calculated as the square root of the sums of the squares of the upper and lower ranges of the individual components.** There is a further issue ..."

Chapter 7

7.5.4.3 1st two bullets

....8-10% ADD "over the most recent production engine by about 2010" - 2 places
Rationale - clarification

Page 25

U.S. NASA Advanced Subsonic Technology (AST) Program: Sequential No_x goals of 50 and 70% reduction below CAEP/2 standards, with comparable reductions at subsonic cruise, engine SFC reduction of 8-10%.

EU-BRITE/EURAM Projects LOW NO_x I, II, III: goal of NO_x reduction more than 60% below CAEP/2; engine SFC reduction of 8-10%.

Chapter 8

Section 8.2.2.5, line 9

"Restricted airspace limits the possibility of managing the airspace efficiently."

has been replaced by

"Restricted airspace does not always allow aircraft to minimize their emissions by direct routing between two points."

Reason for change: Comment by USA (collate comments for draft SPM page 31, 5).

Chapter 9

No changes

Chapter 10

1. Page 11, 2nd Paragraph, Line3

Change "6 to 10%" to "6 to 12%".

Reason: Consistency with full discussion of this issue in Chapter 8.

2. Page 17, Line 1

Change "unlikely to exceed 10% " to "up to 10%"

Reason: Consistency with full discussion of this issue in Chapter 8.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

WMO

UNEP

IPCC-XVI/Doc. 5, Appendix D

STATEMENT ON BEHALF OF ICAO TO THE IPCC PLENARY SESSION

(San Jose, Costa Rica, 15-18 April 1999)

On behalf of the International Civil Aviation Organization (ICAO), I would like to express the Organization's appreciation to the IPCC for the successful completion of the Special Report on Aviation and the Global Atmosphere.

When ICAO requested this report in 1996, we were primarily looking for a better definition of the atmospheric impact of aircraft engine emissions. This report succeeds in providing the most authoritative assessment so far on this subject. It helps to define the issues and to identify the remaining uncertainties.

At the ICAO Assembly in September/October 1998, a resolution was adopted requesting the ICAO Council to study policy options to limit or reduce greenhouse gas emissions from civil aviation, taking into account the findings of this IPCC Special Report and the requirements of the Kyoto Protocol, and to report to the ICAO Assembly at its next ordinary Session in 2001.

I can therefore assure the Panel that its Special Report will be taken fully into account in ICAO's on-going work on aircraft engine emissions.

Thank you.

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INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

UNEP

INTERGOVERNMENTAL PANEL
ON CLIMATE CHANGE

FIFTEENTH SESSION
San Jose, 15-18 April 1999

IPCC-XV/Doc. 6 , Rev. 1
(18.IV.1999)

ENGLISH ONLY

SYNTHESIS REPORT: POLICY-RELEVANT SCIENTIFIC, TECHNICAL, AND SOCIO-ECONOMIC QUESTIONS

(Submitted by the Chairman)

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Scientific, technical and socio-economic questions, selected by the Panel

Q1. What can scientific, technical and socio-economic analyses contribute to the determination of what constitutes dangerous anthropogenic interference with the climate system as referred to in Article 2 of the Framework Convention on Climate Change?

Q2. What is the evidence for, causes of, and consequences of changes in the Earth's climate since the pre-industrial era?

a. Has the Earth's climate changed since the pre-industrial era at the regional and/or global scale? If so, what part, if any, of the observed changes can be attributed to human influence and what part, if any, can be attributed to natural phenomena? What is the basis for that attribution?
b. What is known about the environmental, social and economic consequences of climate changes since the pre-industrial era with an emphasis on the last 50 years?

Q3. What is known about the influence of the increasing atmospheric concentrations of greenhouse gases and aerosols, and the projected human-induced change in climate regionally and globally on:

a. the frequency and magnitude of climate fluctuations, including daily, seasonal, inter-annual, and decadal variability, such as the El Nino-Southern Oscillation cycles and others?
b. the duration, location, frequency and intensity of extreme events such as heat waves, droughts, floods, heavy precipitation, avalanches, storms, tornadoes, and tropical cyclones?
c. the risk of abrupt/non-linear changes in, among others, the sources and sinks of greenhouse gases, ocean circulation and the extent of polar ice and permafrost? If so, can the risk be quantified?
d. the risk of abrupt or non-linear changes in ecological systems

Q4. What is known about the inertia and time-scales associated with the changes in the climate system, ecological systems, and socio-economic sectors and their interactions?

Q5. What is known about the regional and global climatic environmental, and socio-economic consequences in the next 25, 50 and 100 years associated with a range of greenhouse gas emissions arising from scenarios used in the TAR (projections which involve no climate policy intervention),:

To the extent possible, evaluate the:

- projected changes in atmospheric concentrations, climate and sea level;
- impacts and economic costs and benefits of changes in climate and atmospheric composition on human health, diversity and productivity of ecological systems, and socio-economic sectors (particularly agriculture and water);

- the range of options for adaptation, including the costs, benefits and challenges; and
- development, sustainability and equity issues associated with impacts and adaptation at a regional and global level..

Q6. How does the extent and timing of the introduction of a range of emissions reduction actions determine and affect the rate, magnitude and impacts of climate change, and affect the global and regional economy, taking into account the historical and current emissions?

Q7. What is known from sensitivity studies about regional and global climatic, environmental and socio-economic consequences of stabilizing the atmospheric concentrations of greenhouse gases (in carbon dioxide equivalents), at a range of levels from today's to double that level or more , taking into account to the extent possible the effects of aerosols? For each stabilization scenario, including different pathways to stabilization, evaluate the range of costs and benefits, relative to the range of scenarios considered in question 5, in terms of:

- projected changes in atmospheric concentrations, climate and sea level, including changes beyond 100 years;
- impacts and economic costs and benefits of changes in climate and atmospheric composition on human health, diversity and productivity of ecological systems, and socio-economic sectors (particularly agriculture and water);
- the range of options for adaptation, including the costs, benefits and challenges;
- the range of technologies, policies and practices that could be used to achieve each of the stabilization levels, with an evaluation of the national and global costs and benefits, and an assessment of how these costs and benefits would compare, either qualitatively or quantitatively, to the avoided environmental harm that would be achieved by the emissions reductions;
- development, sustainability and equity issues associated with impacts, adaptation and mitigation at a regional and global level.

Q8. What is known about the interactions between projected human-induced changes in climate and other environmental issues, e.g., urban air pollution, regional acid deposition, loss of biological diversity, stratospheric ozone depletion, and desertification and land degradation? What is known about the environmental, social and economic costs and benefits and implications of these interactions for integrating climate change response strategies in an equitable manner into broad sustainable development strategies at the local, regional and global levels?

Q9. What is known about the potential for, and costs and benefits of, and timeframe for reducing greenhouse gas emissions?

a. What would be the economic and social costs and benefits, and equity implications of options for policies and measures, and the mechanisms of the Kyoto Protocol, that might be considered to address climate change regionally and globally?

b. What kind of economic and other policy options might be considered to remove existing and potential barriers and to stimulate private- and public-sector technology transfer and deployment among countries, and what effect might these have on projected emissions?

c. What portfolios of options of research and development, investments, and other policies might be considered that would be most effective to enhance the development and deployment of technologies that address climate change?

d. How does the timing of the options contained in a, b and c affect associated economic costs and benefits, and the atmospheric concentrations of greenhouse gases over the next century and beyond?

Q10. What are the most robust findings and key uncertainties regarding attribution of climate change and regarding model projections of:

- future emissions of greenhouse gases and aerosols;
- future concentrations of greenhouse gases and aerosols;
- future changes in regional and global climate;
- regional and global impacts of climate change; and
- cost and benefits of mitigation and adaptation options?

LIST OF PARTICIPANTS

(Distributed during the Fifteenth Session of IPCC and not attached here in order to save bulk. The list is available upon request from the IPCC Secretariat)

LIST OF PARTICIPANTS

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
FIFTEENTH SESSION
San Jose, 15-18 April 1999

The list of participants is based upon registration forms received.
Please communicate corrections to the IPCC Secretariat

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