

**REPORT OF THE TENTH SESSION OF THE  
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)**

(Nairobi, 10-12 November 1994)

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## **1. OPENING OF THE SESSION**

Prof. B. Bolin, Chairman of the IPCC, opened the session at 1010 hours on Thursday, 10 November 1994 in the headquarters building of the United Nations Environment Programme (UNEP) in Gigiri, Nairobi.

### **1.1 WELCOMING REMARKS BY PROF. B. BOLIN (agenda item 1.1)**

Prof. Bolin welcomed the delegates, the Secretary-General of the World Meteorological Organization (WMO), the Acting Deputy Executive Director of UNEP and the Executive Secretary of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC/FCCC).

### **1.2. STATEMENT BY PROF. G.O.P. OBASI, SECRETARY-GENERAL OF THE WORLD METEOROLOGICAL ORGANIZATION**

Prof. Obasi complimented Prof. Bolin for his able leadership of IPCC and commended the Co-Chairs of the Working Groups and the large number of scientists involved in the IPCC process. He noted the confidence placed in the Panel by Governments, as a result of the objective manner and the transparency with which IPCC conducted its work. He also recalled the appreciation of the Panel's work by the WMO Executive Council.

Recalling his addresses to the eighth and ninth sessions, Professor Obasi reiterated his belief in involving experts from the developing countries and countries with economies in transition in the activities of the Panel. He congratulated the Panel for its efforts in this regard.

Prof. Obasi stressed the relevance of the IPCC Special Report to the first session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP) and noted that the tenth session of IPCC was specially important as it had been convened to accept that Report. Prof. Obasi mentioned three areas on which IPCC needed to focus in its future work: identification of gaps and uncertainties, preparations for the Third Assessment Report and the development of methodologies on greenhouse gas inventories. He expressed the hope that the Third Assessment Report would address the issues of regional climate predictions, their application for impact analysis and the feedback mechanism between the ecological and the climate systems.

Prof. Obasi was pleased with the steady increase in the contributions to the IPCC Trust Fund over the years and expressed gratitude to all donors for their support. He also welcomed

the grant of US\$ 2.75m from the Global Environment Facility (GEF) to IPCC for the latter's capacity building activities. He expressed confidence that the Twelfth World Meteorological Congress would accept the continued sponsorship of the IPCC by WMO, adding that a 60% increase in its contribution to the IPCC Trust Fund would be recommended by him to the Congress.

1.3 STATEMENT BY PROF. OLEMBO, ACTING DEPUTY EXECUTIVE DIRECTOR OF UNEP  
(agenda item 1.3)

In welcoming participants to UNEP Headquarters, Professor Olembo conveyed the regrets of Ms E. Dowdeswell, Executive Director of UNEP, who was unable to participate in the session. He also conveyed Ms Dowdeswell's commitment to the continued support of the Panel.

Professor Olembo hailed the IPCC as the most authoritative international voice on climate change issues, adding that the IPCC First Assessment Report and its 1992 up-date were models of scientific rectitude. He hoped the IPCC Special Report and the Second Assessment Report would meet similar standards. Professor Olembo, however, cautioned that the Panel must be diligent in adhering to transparency and in working in accordance with its Procedures and Principles. Failing to do so would throw away the hard-earned reputation of the Panel.

He informed the session of the development by UNEP and submission to GEF of a series of projects aimed at assisting developing countries to respond to climate change. The projects included development of country study methodologies, tools for assessing emission mitigation measures and studies in the use of economic instruments. Not only was this programme based on IPCC assessment, but the input of IPCC would be sought during project formulation. The project to develop practical indicators for climate change would be based on the results of the IPCC Workshop on Article 2 of the Convention held in Fortaleza, Brazil. Prof. Olembo reiterated UNEP's readiness to contribute to capacity building activities under GEF, in co-operation with other partners in the UN system.

On the World Climate Programme, the joint endeavour of WMO, UNEP, ICSU, UNESCO and its IOC and FAO, Prof. Olembo noted the progress in preparing the integrated proposal to manage WCP. He observed that the proposal addressed the problem of funding for the Programme, and provided a means for comprehensively addressing the many uncertainties related to climate variability and change.

Prof. Olembo informed the session of the workshops on usable science organized under the auspices of the World Climate Impact Assessment and Response Strategies Programme. He noted that the workshops provided information on present day ability to predict extreme meteorological events, and drew an analogy with IPCC's ability to present climate science in a manner that was useful to decision-makers and negotiators of the Convention on Climate Change.

1.4 STATEMENT BY MR. MICHAEL ZAMMIT CUTAJAR, EXECUTIVE SECRETARY, INTERIM SECRETARIAT FOR THE INTERGOVERNMENTAL NEGOTIATING COMMITTEE FOR A FRAMEWORK CONVENTION ON CLIMATE CHANGE (INC/FCCC) (agenda item 1.4)

Mr. Zammit Cutajar conveyed the regrets of the Chairman of the INC/FCCC, Ambassador Raul Estrada-Oyuela, who was unable to be present. He recalled that the Convention required the head of its interim secretariat to cooperate closely with the IPCC "to ensure that the Panel can respond to the need for objective scientific and technical advice". In furtherance of this mandate, he offered some comments on current and future relationships between the Convention and the IPCC. He underlined the existing cooperation between the elected officers and secretariats of the INC/FCCC and the IPCC, stimulated by the initiatives of both Chairmen. He expressed appreciation for the inflow of scientific and technical information from the IPCC since 1990. Recognizing the importance of the contribution of the IPCC to the agreed methodology for national greenhouse gas (GHG) inventories under the Convention, he looked forward to cooperating in the further development of the IPCC inventories programme. He drew attention to areas in which scientific advice was still expected, notably with respect to the definition of the parameters of the ultimate objective of the Convention (Article 2). He suggested that the IPCC should be prepared to respond to the need for specific scientific inputs for the second review of adequacy of commitments by Annex I Parties, which the COP would undertake before 31 December 1998. He further suggested that the completion date of the Third IPCC Assessment might be kept open and eventually adjusted to the evolving Convention process.

Mr. Zammit Cutajar welcomed the paper by Chairman Bolin on the future of the IPCC as an incentive to the Panel to give a signal to the Conference of the Parties of what it was ready to do and when. He pointed out that the modalities of the relationship between the two bodies could be finalized after the COP decision on the organization of its work and that of its Subsidiary Bodies. He concurred with the importance of a sound financial base for the IPCC and referred to the suggestion by the interim secretariat (still to be discussed by the INC/FCCC) that as of 1996, a portion of the regular Convention budget could be allocated to reimbursing the IPCC for specific services requested by the COP and rendered.

Reviewing the future requirements of the Convention process as they related to the IPCC, Mr. Zammit Cutajar stressed the need to maintain the independence of the IPCC, to ensure that its scientific credibility remained unimpaired by political and economic pressures and to work out a sensible division of labour between the IPCC and the Subsidiary Bodies of the COP. He strongly emphasized the importance of the timely availability of inputs from the IPCC and called for the coordination of priorities and work programmes, so that the IPCC process might continue to be relevant and responsive to the needs of the Convention. In concluding, Mr. Zammit Cutajar observed that the Convention allowed the Parties to act at any time on the basis of the "best available" scientific and technical information. He called upon policymakers to work for the "best available" consensus at the first session of the COP and appealed to the scientific community, working through the IPCC, to provide targeted inputs to move that consensus forward.

1.4 STATEMENT BY PROFESSOR BOLIN, CHAIRMAN OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (agenda item 1.4)

Professor Bolin welcomed the statements by Prof. Obasi, Prof. Olembo and Mr. Zammit Cutajar, for their wise counsel. He expressed gratitude to the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) for their continuing support to IPCC, particularly during times of cash flow difficulties.

Turning to the relationship between the IPCC and the Convention process, Professor Bolin informed that he would seek the Panel's mandate during the session to explore what the future role of IPCC should be. Specific recommendations on the issue would be made to the eleventh session of the Panel in 1995.

Professor Bolin noted that controversies which arose within the IPCC were a reflection of the real world. He asserted that such controversies should strengthen the resolve of the Panel to communicate its conclusions to the policymakers in a clear and concise manner. They should also make the scientists alert so that they understood better what went on around them.

He recalled that the Panel had its Procedures and Principles which guided its work and stated that these must be adhered to at all times. Deviation from those principles would tarnish the image of the Panel.

On financial matters, he highlighted two issues to be addressed by the session:

- \* the manner in which 1995 activities were to be financed, and
- \* financing of the Panel's activities on a long-term basis, from 1996 onwards.

During the discussions on these issues, the Panel would have to reconcile the problems of an ambitious programme on the one hand and availability of resources on the other.

Professor Bolin recalled that the session would be accepting the IPCC Special Report to which all three Working Groups had contributed. The Report would be transmitted to the first session of the Conference of the Parties to the UN FCCC. Noting that the IPCC was also in the midst of preparing the Second Assessment Report, Professor Bolin thanked the Co-Chairs of the Working Groups and the hundreds of scientists involved in the preparation of the IPCC reports.

1.6 ADOPTION OF THE AGENDA (agenda item 1.6)

The agenda as amended and adopted by the Panel is attached in appendix A.

2. ADOPTION OF THE DRAFT REPORT OF THE NINTH SESSION, GENEVA, 29-30 JUNE 1993

The draft report was adopted without amendment. It is available on request from the IPCC Secretariat, c/o WMO, 41 avenue Giuseppe Motta, CH 1211 Geneva 2, Switzerland.

3. ACCEPTANCE OF THE IPCC SPECIAL REPORT TO THE FIRST SESSION OF THE CONFERENCE OF THE PARTIES TO THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE

It was recalled that the first session of the Conference of the Parties to the FCCC would take place in Berlin from 28 March to 7 April 1995.

3.1 CONTRIBUTION OF WORKING GROUP I TO THE SPECIAL REPORT (agenda item 3.1)

3.1.1 Sir John Houghton, Co-Chairman of the Working Group, submitted the following contributions of the Working Group to the Panel for acceptance:

- \* The report, Radiative Forcing of Climate Change 1994
- \* Its Summary for Policymakers, including an Executive Summary.

The Summary for Policymakers had been approved line-by-line by the Working Group at its fourth session (Maastricht, 13-15 September 1994). The underlying report had been accepted by the Working Group at the same session, subject to fulfilment of criteria agreed at Maastricht. The criteria had been fulfilled.

3.1.2 The Panel accepted the contributions to the Special Report listed in paragraph 3.1.1 above.

3.1.3 Dr. L. G. Meira Filho, Co-Chairman of the Working Group, submitted to the Panel for acceptance the Summary Statement of the Working Group, which had been approved line-by-line by the Working Group at its fourth session (Maastricht, 13-15 September 1994) on the Phase I IPCC Guidelines for National Greenhouse Gas Inventories. The Guidelines themselves had also been approved at the same session.

3.1.4 The Panel accepted the Statement and the IPCC Guidelines for National Greenhouse Gas Inventories as contributions to the Special Report. The Statement is attached in appendix B. The Guidelines are available on request from the IPCC Secretariat.

3.2 CONTRIBUTION OF WORKING GROUP II TO THE SPECIAL REPORT (agenda item 3.2)

3.2.1 Dr. R.T. Watson, Co-Chairman of the Working Group, submitted the following contributions of the Working Group to the Panel for acceptance:

- \* The description of the IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations
- \* Executive Summary of the IPCC Technical Guidelines
- \* Summary for Policymakers of the IPCC Technical Guidelines.

The Summary for Policymakers and the Executive Summary had been approved line-by-line by the Working Group at its second session (Nairobi, 8-9 November 1994). The underlying IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations had been accepted by the Working Group at the same session.

3.2.2 The Panel accepted the contributions to the Special Report listed in paragraph 3.2.1 above.

3.2.3 The Panel noted that the definition of "adaptation" used in the Executive Summary of the Guidelines refers to both the adverse and positive effects of climate change.

3.2.4 The Panel also noted that "adaptation" in the context of the Climate Change Convention can be understood to include all purposeful and deliberate activity taken in response to or in anticipation of the adverse impacts of rapid climate change. Activities taken in response to or in anticipation of any beneficial impacts of rapid climate change are not explicitly included or excluded in this formulation of adaptation.

3.2.5 The Governments of Japan and the United Kingdom announced that they would jointly publish and distribute the English version of the Guidelines. Japan further announced that it could partially fund their translation into the other five official UN languages and expressed the hope that other governments would join in the effort. The Panel expressed its gratitude for these actions.

### 3.3 CONTRIBUTION OF WORKING GROUP III TO THE SPECIAL REPORT (agenda item 3.3)

3.3.1 Dr. J.P. Bruce, Co-Chairman of the Working Group submitted the following contributions of the Working Group to the Panel for acceptance:

- \* The report, An Evaluation of the IPCC IS92 Emission Scenarios, including a Summary
- \* Its Summary for Policymakers.

The Summary for Policymakers had been approved line-by-line by the Working Group at the first and second parts of its second session (Geneva, 27-28 September 1994; Nairobi, 7-9 November 1994). The underlying report, An Evaluation of the IPCC IS92 Emission Scenarios together with its Summary, had been accepted by the Working Group at the second part of the second session.

3.3.2 The Panel accepted the contributions to the Special Report listed in paragraph 3.3.1 above.

## 4. THE FUTURE OF THE IPCC

### 4.1 IPCC REVIEW PROCESS (agenda item 4.1)

The wide international review to which IPCC reports are exposed represents one of the major strengths of the process. The IPCC recognizes, however, that the burden of handling large numbers of review comments falls most heavily upon the Lead Authors and the Working Group Bureaux, all of whom have other pressures on their time even apart from the extremely tight deadlines applied by the IPCC process. Since the success of IPCC depends ultimately upon the co-operation and willing commitment of these experts, it is essential that all is done to make their task as easy as possible.

The Panel agreed that in any change to be made in the review process, two principles governing the review should be borne in mind. First, the best possible scientific and technical advice should be received so that the IPCC reports can represent the latest scientific findings and be as scientifically credible as is possible. Secondly, a wide circulation (including experts in developing countries) should aim to involve as many experts as possible in the IPCC process.

The Panel agreed the following:

- I. Each government and participating organization as defined in the IPCC Procedures<sup>1</sup> should designate one **Focal Point** for all IPCC activities and provide full information<sup>2</sup> on this Focal Point to the IPCC Secretariat. The Focal Point should liaise with the IPCC Secretariat and the appropriate Technical Support Unit (TSU) regarding the logistics of the review process(es). Of particular importance is the full exchange of information.
- II. For the 1995 SAR, Working Group I would follow the existing IPCC Procedures concerning Expert and Government review, but would run the two review processes concurrently. The time allocated for review would be extended to at least eight weeks.
- III. For the 1995 SAR, Working Groups II and III, already well into the review process, would continue with a two-stage Expert and Government review.
- IV. The experience of Working Group I in running a concurrent Expert and Government review would be appraised at the Eleventh Session of the IPCC.

### 4.2 PROGRESS REPORT ON THE IPCC SECOND ASSESSMENT REPORT (SAR) (agenda item 4.2)

#### 4.2.1 Working Group I: progress report by the Co-Chairs (agenda item 4.2 a)

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<sup>1</sup> IPCC Procedures for Preparation, Review, Acceptance, Approval and Publication of its Reports

<sup>2</sup> Name, address, telephone, fax and e-mail.



The Panel noted with appreciation the progress report given by Dr. L.G. Meira Filho, Co-Chairman of the Working Group, which is attached in appendix C.

#### 4.2.2 Working Group II: progress report by the Co-Chairs (agenda item 4.4 b)

The Panel noted with appreciation the progress report given by Dr. R.T. Watson, Co-Chairman of the Working Group, which is attached in appendix D.

#### 4.2.3 Working Group III: progress report by the Co-Chairs (agenda item 4.2 c)

The Panel noted with appreciation the progress report given by Dr. Hoesung Lee, Co-Chairman of the Working Group, which is attached in appendix E.

#### 4.2.4 Comments by the IPCC on the above presentations (agenda item 4.2 d)

The Panel agreed that:

- \* deadlines for receipt of comments in the peer review stage should generally be adhered to;
- \* that IPCC national Focal Points would be informed of names of the expert (peer) reviewers in the respective countries to whom material had been or would be sent directly for review purposes;
- \* if the different parts of the Special Report were to be published separately as stand alone documents, the Summary for Policymakers and the appropriate Executive Summary would be included in the publication.

#### 4.2.5 The Chairman summarized the situation with regard to the IPCC Synthesis Report as follows:

- \* the Synthesis Report was always planned to be part of the Second Assessment Report and never otherwise;
- \* the Synthesis Report would be subject to reviews described in the IPCC Procedures;
- \* the Drafting Team which would assist him in drafting the Synthesis Report would consist of the six Co-Chairmen of the three Working Groups and other experts;
- \* the Synthesis Report would be primarily based on the reports of the three Working Groups and the results of the IPCC Special Workshop on Article 2 of the FCCC (Fortaleza, 17-21 October 1994) and that its structure would be guided by the IPCC examination of achieving the Objective of the FCCC as embodied in its Article 2.

#### 4.3 Post-SAR work programme and future requests, if any, from the COP (agenda item 4.3)

4.3.1 The Chairman had provided a discussion paper on the subject which is available on request from the IPCC Secretariat.

#### 4.3.2 The Panel made the following points in the course of the discussion:

- \* an approximately 5-year periodicity in conducting the complete assessments of the IPCC would appear to be reasonable;
- \* the IPCC should maintain its independence as a technical-scientific body and that this would require stable financial support for its activities; this could be done only if IPCC developed precise work plans to serve different needs such as full assessments, updates and supplementary reports, quick-response information to COP;
- \* the IPCC should maintain its technical-scientific integrity by maintaining adequate review processes for its products;
- \* relationship between the Subsidiary Body for Scientific and Technological Advice (SBSTA) to be established under the FCCC and the IPCC need to be clarified and be such that there would be no duplication and information was provided in a timely fashion, without compromising the independence or the value of IPCC procedures; one possible option could be the establishment of smaller task forces to respond quickly to COP's needs; joint working groups could provide communication channels between the two organizations;
- \* the IPCC should maintain its current breadth of subject areas of assessments, i.e., science, impacts, mitigation & adaptation options, socio-economics;
- \* the IPCC should provide update reports as it deemed necessary to help policymakers in the context of the FCCC, organizations involved in research and monitoring and perhaps other relevant environmental conventions;
- \* the IPCC should continue its relation with WMO and UNEP;
- \* while the IPCC had been successful in engaging experts from the developing and transitional economy countries, it should redouble its efforts to maintain and increase such engagement; one method of achieving this would be through the identification and nomination of more lead authors from these countries;
- \* the IPCC reports were all written in English and this posed difficulties particularly to developing countries in providing useful reviews.

4.3.3 The Panel authorized the Chairman to explore what the future role of the IPCC could be through consultations with WMO, UNEP, the Bureau of the INC/FCCC and the Interim Secretariat for the FCCC. It requested him to report on the outcome of his efforts at its next session.

## 5. IPCC BUDGET AND OTHER SUPPORT

### 5.1 REPORT ON THE STATUS OF THE IPCC TRUST FUND (Agenda item 5.1).

5.1.1 Dr. N. Sundararaman, the Secretary of the IPCC introduced the document on the status of the WMO/UNEP IPCC Trust Fund as of 14 October 1994, with projections to 30 November 1994. The document is available on request from the IPCC Secretariat.

5.1.2 The Panel took note of the report. It requested the Secretary to mention the support costs of Working Group Technical Support Units and other support in kind provided by governments in future status reports.

5.1.3 Dr. Sundararaman also presented the document "Budget Estimate until Completion of the IPCC Second Assessment Report". The document which contained the estimate through the end of 1995 is available on request from the IPCC Secretariat.

5.1.4 With regard to the 1995 budget, the Panel requested the Chairman of IPCC with the assistance of the Secretariat and in close consultation with the Chairman of the Ad-Hoc IPCC Financial Task Force, to send letters by 15 December 1994 to donor governments for contributions; the proposed budget for 1995 should be attached to the letters.

5.1.5 The Panel noted with gratitude the pledges of:

- i. the United Kingdom to maintain its 1995 contribution at the same level as in 1994, and for its offer to explore the possibility of an increase in that contribution;
- ii. Germany to contribute at the same level for 1995 as in 1994;
- iii. Canada for 1995 routed through the United Nations Environment Programme.

5.1.6 Sir John Houghton, Co-chairman of Working Group I introduced the document on IPCC/OECD/IEA Programme on National Greenhouse Gas Inventories. The document is available on request from the IPCC Secretariat.

5.1.7 The Panel agreed to make a contribution of US\$170,000 out of the IPCC Trust Fund (in addition to that of CHF 300,000 out of the GEF grant to IPCC) to meet the shortfall in the second phase of the inventories programme.

## 5.2 PLANS FOR FINANCING POST-SAR ACTIVITIES (agenda item 5.2)

5.2.1 Under this agenda item, a discussion paper on long-term funding of IPCC activities was submitted by Mr. D. Reifsnyder, Chairman of the Ad-Hoc IPCC Financial Task Group. The document is available on request from the IPCC Secretariat. The Panel generally welcomed the proposals contained in the discussion paper as a good starting point for a more stable funding for future IPCC activities.

5.2.2 Three options were proposed in the discussion paper for funding future IPCC activities: (i) full funding by the sponsoring organizations, WMO and UNEP; (ii) funding by GEF; and (iii) funding by participating governments. The Panel was inclining towards the third option. There was a prevailing view that contributions to the Trust Fund should be on a voluntary basis. Under the third option, approximately 75% of the annual budget would come from voluntary contributions by participating developed countries (this could be on the same scale as their respective percentage contributions to the regular budget of the United Nations). The balance would come from voluntary contributions from developed countries that had not participated in IPCC, further voluntary contributions from participating developed countries, participating regional economic integration organizations, voluntary contributions from

developing and transitional economy countries, COP at a maximum of 10-15% level of the IPCC budget, international organizations, private foundations and others.

5.2.3 The Panel agreed that the question of financial contributions from the COP to the IPCC should be raised in the meetings of the Joint INC/IPCC Working Group.

5.2.4 The Panel noted with appreciation the offer by China host a session of the IPCC or of a Working Group during the next five years.

## 6. TIME AND PLACE OF THE NEXT SESSION

6.1 The time of the eleventh session was fixed tentatively to be from 11 to 15 December 1995. The Secretariat would explore the availability of conference space.

6.2 A list of IPCC meetings for 1995 was distributed to the Panel and is attached in appendix F.

## 7. OTHER BUSINESS

There was none.

## 8. ADOPTION OF THE REPORT OF THE SESSION

The parts of the report of the session on agenda items 2, 3 and 4.1 were circulated and approved at the session. The rest of the report would be submitted as a draft to the eleventh session for approval.

## 9. CLOSING OF THE SESSION

The session closed at 1315 hours on Saturday, 12 November 1994. The list of participants was distributed during the session and is available on request from the IPCC Secretariat.



# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION

IPCC-X/Doc. 1, REV. 1  
(10.XI.1994)  
ENGLISH ONLY

Nairobi, 10-12 November 1994

## ANNOTATED AGENDA

### 1. OPENING OF THE SESSION

Prof. B. Bolin, the Chairman of the IPCC, will open the session at 1000 hours on Thursday, 10 November 1994.

- 1.1 Welcoming remarks by Prof. B. Bolin
- 1.2 Statement by Prof. G.O.P. Obasi, Secretary-General of the World Meteorological Organization
- 1.3 Statement by Ms. E. Dowdeswell, Under-Secretary-General of the United Nations and Executive Director of the United Nations Environment Programme
- 1.4 Statement by Ambassador R. Estrada-Oyuella, Chairman of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change
- 1.5 Statement by Prof. B. Bolin, Chairman of the IPCC
- 1.6 Adoption of the agenda (Doc. 1)

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

Simultaneous interpretation in the six official UN languages will be available during the plenary meetings of the session. All pre-session and in-session documentation will be in English only. Funds permitting, the Summaries for Policymakers (see agenda item 3 below) will be translated into the other UN languages at a later date.

It is suggested that the working hours of the session be from 1000 to 1300 and 1500 to 1800 with appropriate breaks.

### 2. ADOPTION OF THE DRAFT REPORT OF THE NINTH SESSION (GENEVA, 29-30 JUNE 1993) (Doc.2)

3. ACCEPTANCE OF THE IPCC SPECIAL REPORT TO THE FIRST SESSION OF THE CONFERENCE OF THE PARTIES TO THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE (Doc.3, parts I-IV)

Delegates may wish to refer to IPCC-X/INF.2 for IPCC procedures for preparation, review, acceptance, approval and publication of IPCC Reports.

It may be recalled that the first session of the Conference of the Parties to the UN Framework Convention on Climate Change is scheduled to take place in Berlin from 28 March to 7 April 1995. The IPCC Special Report consists of:

- \* Summary for Policymakers of Working Group I on the radiative forcing of climate change, approved by the Working Group at its fourth session (Maastricht, 13-15 September 1994) and its underlying report accepted by the Working Group at the same session;
- \* IPCC Guidelines for National Greenhouse Gas Inventories, developed by Working Group I and approved by the Working Group at its fourth session (Maastricht, 13-15 September 1994);
- \* Summary for Policymakers of Working Group III on an evaluation of the IPCC IS92 emission scenarios, approved by the Working Group at its second session (Geneva, 27-28 September 1994) and its underlying report accepted by the Working Group at the same session;
- \* The IPCC Technical Guidelines on Climate Change Impacts and Adaptations, developed by Working Group II and approved by the Working Group at its second session (Nairobi, 8 November 1994).

3.1 Contribution of Working Group I to the Special Report

- (a) Presentation by the Co-Chairs, Sir John Houghton and Dr. L.G. Meira Filho, of the Summary for Policymakers and its underlying report on radiative forcing of climate change
- (b) Acceptance of the above by the IPCC
- (c) Presentation by the Co-Chairs, Sir John Houghton and Dr. L.G. Meira Filho, of the IPCC Guidelines for National Greenhouse Gas Inventories
- (d) Acceptance of the above by the IPCC

3.2 Contribution of Working Group II to the Special Report

- (a) Presentation by the Co-Chairs, Dr. R.T. Watson and Dr. M.C. Zinyowera, of the IPCC Technical Guidelines for Climate Change Impacts and Adaptations
- (b) Acceptance of the above by the IPCC

3.3 Contribution of Working Group III to the Special Report

- (a) Presentation by the Co-Chairs, Mr. J.P. Bruce and Dr. Hoesung Lee, of the Summary for Policymakers and its underlying report on an evaluation of the IPCC IS92 emission scenarios
- (b) Acceptance of the above by the IPCC

4. THE FUTURE OF THE IPCC

It may be recalled that the IPCC Second Assessment Report (SAR) is scheduled for completion at the eleventh session of the Panel (Geneva, 26-29 September 1995).

4.1 IPCC review process (Doc.4)

Experience during the preparation of the Special Report has identified shortcomings in the review process. The Bureau of Working Group I will make a proposal in this regard.

4.2 Progress report on SAR

- (a) Working Group I: progress report by the Co-Chairs
- (b) Working Group II: progress report by the Co-Chairs
- (c) Working Group III: progress report by the Co-Chairs
- (d) Comments by the IPCC on the above presentations

4.3 Post-SAR work programme and future requests for information to the IPCC, if any, from the Conference of the Parties (COP) to the UN Framework Convention on Climate Change (Doc. 5)

The Chairman will present his ideas for discussion.

5. IPCC BUDGET AND OTHER SUPPORT

5.1 Report on the status of the IPCC Trust Fund (Doc.6)

The Secretary will report on the status of the joint WMO/UNEP IPCC Trust Fund.

5.2 Plans for financing post-SAR IPCC activities (Doc.7)

It may be recalled that the IPCC Bureau, at its seventh session, established the Ad-Hoc IPCC Financial Task Group to make recommendations on financing IPCC activities after the eleventh session (Geneva, 26-29 September 1995). The Chairman of the Group, USA, will report on the outcome of the Group's activities for the consideration of the Panel.

6. TIME AND PLACE OF THE NEXT SESSION

It may be recalled that the eleventh session is scheduled to take place in Geneva from 26 (afternoon only) to 29 September 1995.

7. OTHER BUSINESS

8. ADOPTION OF THE REPORT OF THE SESSION

9. CLOSING OF THE SESSION

The session is expected to close at 1800 hours on Saturday, 12 November 1994.



## SUMMARY STATEMENT OF IPCC WGI FOURTH PLENARY SESSION CONCERNING APPROVAL OF THE GUIDELINES FOR NATIONAL GREENHOUSE GAS INVENTORIES

### Introduction

At its fifth plenary session (Geneva, March 1991), the IPCC agreed to proceed with the development of Guidelines for the calculation and reporting of national inventories of greenhouse gas emissions by sources and removals by sinks.

The aim of this work was a set of Guidelines which commanded wide international acceptance and which could be submitted to the Conference of the Parties to the UN Framework Convention on Climate Change for approval by that body as "an agreed methodology".

At an early stage in the development of the Guidelines it became clear that the wealth of material and the range of readership required that careful thought be given to the presentation of the methodology. Based on advice from both potential users and from professional experts on documentation it was decided to publish the Guidelines in three volumes:

- Volume 1 *Reporting Instructions.*
- Volume 2 *Workbook.*
- Volume 3 *Reference Manual.*

### Development of the Guidelines

To achieve a fully satisfactory result, two distinct, but overlapping activities had to be pursued:

1. Technical development of the methodology - to ensure that the methodology was based on the best available technical information.
2. Technical outreach - to ensure that the evolving methodology took full account of the technical and organisational context within different countries and regions.

### Technical Development Activities

Two major tools were the Expert Group and In-Depth Review of National Data. Expert Groups, comprising experts from industry, government and research institutes from a wide range of countries, were convened for specific gases and sectors. The task of each Expert Group was to thoroughly review existing methodologies and to recommend a "best method". The recommendations of the Expert Groups were further reviewed by independent experts before they were incorporated in the Draft Guidelines circulated for country review.

Available national greenhouse gas data has been collected and reviewed since 1991. Analysis of these data led to a number of improvements in the draft methodology.

### **Technical Outreach**

Early in the programme a "global" workshop was held in Geneva (December 1991), to examine the "Background document" used as the starting point for the Guidelines. Recommendations from this meeting led to two important developments:

- a. the establishment of a network of technical points of contact in as many countries as possible. By providing direct access to experts in different countries, the network of technical contact points was used to review draft material and software, and to provide feedback to the programme co-ordinators.
- b. a programme of regional workshops designed to provide training in the use of the draft methodology and to receive feedback based on regional experience in using the draft methodology. Regional workshops were held for countries in Latin America and the Caribbean (Sao Paulo, March 1993), for countries in Central and Eastern Europe (Bratislava, October 1993), and for countries in Africa (Nairobi, March 1994). The final workshop in the series, for Asia-Pacific countries, will be held in Chiang Mai, Thailand (October 3-7, 1994).

### **Approval of the Guidelines**

IPCC WGI has reviewed the three volumes of the Draft Phase 1 Guidelines, and has noted the extensive efforts made in the technical outreach programme to effectively involve experts from different regions of the world in the development and improvement of the Guidelines. At its fourth plenary session (Maastricht, the Netherlands, 13-15 September 1994), IPCC WGI approved the use of the draft IPCC Guidelines (incorporating those amendments also agreed by the IPCC WGI at its plenary session), for the calculation and reporting of national inventories of greenhouse gas emissions by sources and removals by sinks.

The IPCC WGI recognised that the Guidelines should be revised on a regular basis in the light of new scientific and technical information. Detailed proposals for further development of the Guidelines will be presented to the IPCC Plenary in November 1994.

IPCC WGI recognised with gratitude the help received in this work from a wide range of countries, organisations and individuals.



# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION

Nairobi, 10-12 November 1994

IPCC-X/Doc. 15  
(12.XI.1994)  
ITEM 4.2

ENGLISH ONLY

## PROGRESS REPORT ON PREPARATION OF THE 1995 SCIENTIFIC ASSESSMENT OF CLIMATE CHANGE

(submitted by the Co-chairs of IPCC WG I)

# **Progress Report on Preparation of the 1995 Second Scientific Assessment of Climate Change**

## **1. Introduction**

1.1 At its Fifth plenary session (Geneva, March 1991) the IPCC agreed to conduct a Second Assessment Report (SAR), covering all aspects of climate change, in the 1994-95 time frame. At its Eighth plenary session (Harare, November 1992) the IPCC accepted detailed proposals from its three Working Groups for completion of the SAR by the end of 1995. WGI began immediately to define the structure of the Second Scientific Assessment of Climate Change and to identify potential Lead Authors, contributors and reviewers. However, because WGI was also committed to producing a substantial report in 1994, as part of the IPCC Special Report to the first Conference of the Parties to the UN Framework Convention on Climate Change, detailed drafting of the Second Scientific Assessment did not begin until late 1994.

## **2. Content**

2.1 Preliminary proposals for the structure of the 1995 Second Scientific Assessment report (SSAR) were circulated for comment during 1993, and further developed at a joint meeting between IPCC WGI and the WMO/UNEP Ozone Assessment panel, held in Shepperton, UK, in December 1993. At that time it was envisaged that there would be 15 chapters, with Chapters 2-6 being updated versions of the five chapters of the 1994 IPCC WGI report on *Radiative Forcing of Climate Change*.

2.2 As drafting of the 1994 report proceeded it became increasingly clear that there would be several advantages in concentrating an update of the material contained in the 1994 report in a single chapter of the 1995 SSAR. The decision to adopt this format was formally taken at the Lead Authors' first drafting session for the 1995 SSAR (Sigtuna, Sweden, 31 Oct - 2 Nov 1994). The agreed structure is at Annex 1.

## **3. Lead Authors**

3.1 Potential Lead Authors were selected by the WGI bureau from the pool of nominations provided by countries, by individual scientists and by international scientific and industry organisations. In making their selection, the WGI bureau aimed to achieve a high level of scientific excellence in each chapter team, as well as a diversity of expertise and geographical representation. The current list of Lead Authors is at Annex 2.

In the case of one or two chapters additional Lead Authors may be added to provide particular expertise or geographic balance.

#### 4. Timetable

4.1 In the light of (a) experience with the 1994 report on *Radiative Forcing of Climate Change* and (b) changes in IPCC review process agreed at IPCC-X, the schedule for preparation of the 1995 Scientific Assessment has been substantially revised. Important dates are:

First drafting session of Lead Authors	31 Oct - 2 Nov, 1994 Sigtuna, Sweden
Second drafting session of Lead Authors	14-17 March 1995, Brighton, UK
Concurrent expert and government review	8 May - 7 July
Third drafting session of Lead Authors	25-28 July, USA - <i>to be confirmed</i>
WGI 5th plenary	27-29 Nov, Madrid, Spain - <i>to be confirmed</i>

## IPCC Second Scientific Assessment Report, 1995

## CONTENTS

Chapter no.	Title
—	Summary for Policymakers (SPM) including Executive Summary (ES)
1.	The Climate System - an overview
2.	Radiative Forcing of Climate Change - an update to Part I of the 1994 Report
2.1	CO <sub>2</sub> and the carbon cycle
2.2	Other trace gases and atmospheric chemistry
2.3	Aerosols
2.4	Radiative forcing
2.5	Trace gas radiative forcing indices
3.	Observed climate variability and change
4.	Climate processes
5.	Climate models - validation
6.	Climate models - projections of future climate
7.	Changes in sea-level
8.	Detection of climate change, and attribution of causes
9.	Terrestrial biotic responses to environmental change and feedbacks to climate
10.	Marine biotic responses to environmental change and feedbacks to climate
11.	Advancing our understanding

## IPCC Second Scientific Assessment Report, 1995

## LEAD AUTHORS

@ 4 November 1994

Chapter	Lead Author	Country
1: The Climate System - an overview	K Trenberth (convenor)	USA
	L G Meira Filho	Brazil
	J Houghton	UK
2.1: CO <sub>2</sub> and the carbon cycle	D Schimel (convenor)	USA
	I Enting	Australia
	T Wigley	UK
	D Alves	Brazil
	D Raynaud	France
	M Heimann	Germany
2.2: Other trace gases and atmospheric chemistry	Michael Prather (convenor)	USA
	R G Derwent	UK
	Xiuji Zhou	China
	P Fraser	Australia
	E Sanhueza	Venezuela
	D Ehhalt	Germany
2.3: Aerosols	P Jonas (convenor)	UK
	H Rodhe	Sweden
	R Charlson	USA
	S Sadasivan	India
2.4: Radiative forcing	K Shine (convenor)	UK
	V Ramaswamy	USA
	S Solomon	USA
	Y Fouquart	France
	J Srinivasan	India
2.5: Trace gas radiative forcing indices	D Albritton (convenor)	USA
	M Lal	India
	R G Derwent	UK
	I Isaksen	Norway
	D Wuebbles	USA

Chapter	Lead Author	Country
<b>3: Observed climate variability and change</b>	N Nicholls (convenor)	Australia
	D Parker	UK
	T Karl	USA
	G Gruza	Russia
	L Ogallo	Kenya
	J Jouzel	France
<b>4: Climate processes</b>	R Dickinson (convenor)	USA
	V Meleshko	Russia
	A Slingo	UK
	P Diaz	Brazil
	+ others	
<b>5: Climate models - validation</b>	Larry Gates	USA
	Ann Henderson-Sellers	Australia
	C Folland	UK
	A Kitoh	Japan
	F Semmazi	Uganda
	G Boer	Canada
	Q-C Zeng	China
	Bryant McAvaney	Australia
<b>6: Climate models - projections of future climate</b>	H Grassl (convenor)	Germany
	R Stouffer	USA
	A Kattenberg	Netherlands
	J Mitchell	UK
	G Meehl	USA
	Giorgi	Italy
	A Weaver	Canada
	T Tokioka	Japan
<b>7: Changes in sea level</b>	R Warrick (convenor)	New Zealand
	Hans Oerlemans	Netherlands
	P Woodworth	UK
	M Meier	USA
	C Le Provost	France
<b>8: Detection of climate change, and attribution of causes</b>	Ben Santer (convenor)	USA
	T Wigley	UK
	T Barnett	USA
	E Anyamba	Kenya



Chapter	Lead Author	Country
<b>9: Terrestrial biotic responses to environmental change and feedbacks to climate</b>	J Melillo (convenor)	USA
(Lead Authors of this chapter must maintain close links with Chapter 2)	C Prentice	Sweden
	O Sala	Argentina
	G Farquhar	Australia
	E D Schulze	Germany
<b>10: Marine biotic responses to environmental change and feedbacks to climate</b>	Ken Denman	Canada
	E Hofmann	USA
	H Marchant	Australia
<b>11: Advancing our understanding</b>	G McBean	Canada
	P Liss	UK
	S Schneider	USA



# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION

IPCC-X/Doc. 12  
(11.XI.1994)

Nairobi, 10-12 November 1994

ENGLISH ONLY

Working Group II: Report on Progress in Preparing the Second Assessment  
Report

Submitted by the Co-Chairs of Working Group 2

Dr. R.T. Watson  
Dr. M.C. Zinyowera

## Working Group II: Report on Progress in Preparing the Second Assessment Report

### 1. Structure of the Working Group

Working Group 2 (WG 2) is jointly chaired by the United States and Zimbabwe. These two countries are assisted by four pairs of subgroup co-chairs: India and Japan, Subgroup A (energy and industry); the Netherlands and Venezuela, Subgroup B (coastal zones and small islands); Argentina and Switzerland, Subgroup C (unmanaged ecosystems); France and Tunisia, Subgroup D (managed systems). The Working Group is supported by a Technical Support Unit (TSU) which can be contacted at: 300 D Street S.W. #840, Washington DC 20024 USA; tel: +1 202 651 8260; fax: +1 202 554 6715; email: "ipcc@usgcrp.gov".

### 2. Overview of the WG 2 contribution to the SAR

The Working Group 2 contribution to the Second Assessment Report comprises 27 chapters which cover potential impacts, adaptations, and mitigation measures in a variety of physical, ecological, and socio-economic sectors. The topics covered include impacts on unmanaged ecosystems such as forests, wetlands, oceans, and deserts; impacts on and adaptations in managed ecosystems and socio-economic systems such as rangelands, agriculture, energy supply, and human settlements; and options for mitigation in the energy supply, industry, transportation, and human settlements.

### 3. Preparation of draft chapters

Each writing team consists of one or two convening lead authors (CLAs), three to five principal lead authors (PLAs), and a larger number of authors and other contributors. For all chapters, at least one convening or principal lead author is from a developing country.

Preparation of the chapters began in September 1993 with a meeting of lead authors to finalize detailed outlines based on the report structure approved by the IPCC plenary in June 1993. "Zero-order" drafts were circulated before a second lead authors' meeting, which was held in June 1994. Approximately 150 authors (including at least one from a developing country for each chapter) participated and used this occasion to provide an internal review of zero-order drafts and to begin the process of reducing overlaps, filling gaps, and developing consistent approaches to issues requiring coordination.

#### 4. Expert review process

By decision of the WG 2 Bureau (the co-chairs and subgroup co-chairs) peer review of the first draft chapters was coordinated by the WG 2 TSU, with distribution of the chapters being the responsibility of the developed-country sub-group co-chairs (or the convening lead authors, directly, in some cases).

The first-draft chapters were distributed when they were completed, between early August and late September 1994, along with guidelines for the review process. Approximately 800 experts are involved in reviewing the chapters. Review comments are due to the subgroup co-chairs by November 15. Reviewers are encouraged to submit their reviews in printed and electronic form. Reviews may also be submitted to the TSU through email (internet) at: "ipcc@usgcrp.gov". Following the completion of the expert review, the lead-author teams will revise their chapters and then conduct a second internal review of the drafts during January 1995, after which further revisions are expected to be made.

#### 5. Second stage (government) review process

The second stage government review will be conducted in March and April, 1995. This review will be centralized in the TSU, which will be responsible for distribution of the chapters. *Before February 1, 1995*, governments are requested to contact the IPCC Secretariat in Geneva to be sure that the IPCC has the correct name and full mailing address, phone number, fax number, and email address (if available) for their IPCC focal point. In addition to distributing the chapters by mail, the TSU is exploring the possibility of making the draft chapters available for review via file transfer protocol (ftp) on internet. Please contact "shardul@usgcrp.gov" for further information.

#### 6. Revised workplan

In response to the change in the date of the IPCC plenary from September to December, changes have been made in the WG 2 schedule of work. These dates are reflected in this report and are summarized in the proposed revised schedule which is attached to this document.

#### 7. IPCC Special Workshop on Article 2 of the U.N. Framework Convention on Climate Change

The three Working Groups of IPCC jointly organized a workshop exploring the scientific information needed and available to assist governments in interpreting Article 2 of the U.N. FCCC, which defines the objective of the Convention as avoiding "dangerous" anthropogenic

interference in the climate system. Working Group 2 was asked to take the lead in the coordinating scientific technical aspects of the workshop. An informal working document summarizing the workshop discussions is available from the WG 2 TSU on request.

8. Report from the Second Session of the Reorganized Working Group 2

A report on the Second Session of the Reorganized Working Group 2 is available as IPCC-X/Doc. 8.

# IPCC Working Group II Revised Schedule for 1994-1995

EVENT OR PROCESS	ORIGINAL TIME	ORIGINAL DATES	PROPOSED TIME	PROPOSED DATES
Expert review of first-order draft chapters.	8 weeks	August 8-October 3, 1994	6-8 weeks	November 15, 1994 (new deadline)
Lead authors prepare second-order draft chapters.	8.5 weeks	October 10-Dec 2, 1994	Varies (3-12 weeks)	December 16, 1994 (CLAs mail out drafts)
Informal review of second-order draft chapters.	4 weeks	December 2, 1994-January 2, 1995	3 weeks	December 16, 1994-January 9, 1995
Second Lead Authors Meeting to discuss second order draft chapters (Geneva, Switzerland).	5 days	January 9-13, 1995	5 days	January 9-13, 1995
Lead Authors finalize chapters for incorporation into first draft integrated WG II assessment report. (LAs send diskette to TSU - all subsequent textual changes made through TSU).	1.5 weeks	January 16-27, 1995	4 weeks	January 16- February 10 (Diskette or FTP to TSU Feb 10)
WG II TSU incorporates chapters into first integrated draft WG II assessment report.	2 weeks	January 23-Feb 6, 1995	3 weeks	February 13-March 3, 1995
Country Review of first integrated WG II assessment report.	7 weeks	Feb 6-March 31, 1995	7 weeks	Mar 6-April 28, 1995
WG II TSU and sub-group co-chairs collate comments by page and line numbers and send to lead authors and participants to the Third Lead Authors Meeting.	2 weeks	April 3-17, 1995	3 weeks	May 1-19, 1995
Third Lead Authors Meeting			4 days	May 31-June 3, 1995
Lead Authors prepare revised WG II assessment report chapters.	5 weeks	April 17-May 26, 1995	4 weeks	June 3-30, 1995
WG II TSU integrates revised chapters into second integrated WG II assessment report (editing, copy-editing and layout).	1.5 weeks	May 30-June 9, 1995	10 weeks	June 30-September 8, 1995
Final Draft of WG II SAR to Governments via IPCC Secretariat				September 15, 1995
IPCC WG II Plenary to accept WG II SAR (Geneva, Switzerland).	5 days	July 10-14, 1995	5 days	October 16-20, 1995
IPCC WG II TSU completes final editing of WG II SAR and sends final edited WG II SAR to IPCC Secretariat for official transmittal to governments.	2 weeks	July 17-31, 1994	3 weeks	October 23-Nov 10, 1995 (In mail November 10, 4 weeks before plenary)
IPCC XI Plenary to accept SAR (Geneva, Switzerland).	5 days	September 26-30, 1994	5 days	December 11-15, 1995



## INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION

IPCC-X/Doc. 12/Add. 1  
(11.XI.1994)

Nairobi, 10-12 November 1994

ENGLISH ONLY

The following paragraph should be added to IPCC-X/Doc. 12 (Working Group II: Report on Progress in Preparing the Second Assessment Report), submitted by the Co-Chairs of Working Group 2.

9. IPCC support for the development of methodologies and analytic methods

Working Group 2 recognizes that the development of guidance on technologies and analytic methods for compiling emissions inventories, assessing impacts and adaptation, and evaluating mitigation options, will be a continuing need to help countries meet their commitments under Article 4 of the FCCC. It therefore recommends that the IPCC Secretariat prepare an option paper for work in these areas, after consultation with the Secretariat of the INC. Also, recognizing the need to continue current efforts to develop guidance on mitigation methods, WG 2 supports the need for a peer review workshop in 1995, in conjunction with other multilateral organizations.



# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



**INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION**

**IPCC-X/Doc. 11  
(9.XI.1994)  
ITEM 4.4 (c)**

**Nairobi, 10-12 November 1994**

**ENGLISH ONLY**

## **PROGRESS REPORT ON THE WORKING GROUP III SECOND ASSESSMENT REPORT**

**(Submitted by the Co-chairs of IPCC Working Group III)**

Mister chairman it gives me great pleasure to report on the progress of the Working Group III Second Assessment Report. We are making excellent progress.

Working Group III organized ten writing teams. Nine of these teams are responsible for assessing aspects of the scientific literature related to the social and economic aspects of climate change. The tenth writing team was responsible for the evaluation of the IPCC IS92 emissions scenarios report which forms part of the 1994 Special Report.

To assist its Lead Authors and Bureau to gain a broad understanding of the social and economic sciences related to climate change in developing and developed countries, Working Group III also organized four workshops in different regions of the world to deal with topics within its mandate. These workshops have been successfully completed.



The workshops were as follows:

Policy Instruments and Their Implications, Tsukuba, Japan, January 1994.

Emissions Scenarios, Fortaleza, Brazil, April, 1994.

Top Down and Bottom Up Modelling, Milan, Italy, April, 1994.

Equity and Social Considerations, Nairobi, Kenya, July, 1994.

The Policy Instruments workshop was supported by the governments of Japan and Australia and Proceedings have already been published. The Top Down and Bottom Up workshop was supported by the government of Italy. The purpose of this workshop was to help the writing team better understand these modelling approaches; no Proceedings are planned. Proceedings of the Equity and Social Considerations workshop are now ready to be printed. They will be published with financial support from the government of Norway and are expected to be available early in 1995. An extended Lead Authors meeting on the subject of the social costs of climate change was held in Vienna in May with financial support from the government of Austria.

Each of the workshops had a one day regional component. The regional workshop was designed to enable researchers in the region, especially from developing countries and countries with economies in transition, to learn about the activities of Working Group III and to describe regional concerns and interests related to the social and economic aspects of climate change to experts engaged with Working Group III.

The work plan of Working Group III requires that we consider and make recommendations on the need for updated or new emission scenarios for the Second Assessment Report. Working Group III recommends that no additional work related to emissions scenarios be undertaken for the Second Assessment Report. There is no time to perform additional work in time for the Second Assessment Report since the draft chapters for that report are already undergoing peer review. We seek the approval of the IPCC for this recommendation.

The Lead Authors recommended that the number and order of chapters be modified from that suggested in the Outline of Themes to be Considered in the Working Group III Plan for the Work Program. The material to be covered remains unchanged. The new sequence of chapters allows more effective presentation of the material. The revised list of chapters has been circulated as Doc. 9. add 1. The revised report structure was approved by Working Group III at its session in Geneva.

Drafts of the chapters of the Second Assessment Report are currently undergoing peer review. The Lead Authors will meet at IIASA in Austria on November 28 to 30 to consider the peer review comments. The revised draft is expected to be circulated for government review in late January. The final draft and Summary for Policy Makers are then expected to be circulated to governments and organizations in May for acceptance and adoption at the next session of Working Group III in Geneva on July 25 to 28, 1995.

**WORKING GROUP III  
SECOND ASSESSMENT REPORT  
REPORT STRUCTURE**

Summary for Policy Makers

Technical Summary

1. Scope of the Assessment
2. Decision Making Framework to Address Climate Change
3. Equity and Social Considerations
4. Intertemporal Equity and Discounting
5. Applicability of Benefit Cost Analysis to Climate Change
6. The Social Costs of Climate Change: Greenhouse Damage and the Benefits of Control
7. A Generic Assessment of Response Options
8. Key Determinants of Abatement Costs
9. Estimates of Abatement Costs
10. An Assessment of Greenhouse Policy Instruments
11. Evaluation of the IPCC IS92 Emission Scenarios



# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION

Nairobi, 10-12 November 1994

IPCC-X/Doc. 10  
(11.XI. 1994)  
Agenda item: 6

ENGLISH ONLY

## LIST OF IPCC MEETINGS

1995

9-13 January	Geneva	Working Group II - Lead Authors
14-17 March	TBD	Working Group I - Lead Authors
TBD April	TBD	Working Group III - Lead Authors
TBD May	Athens	Drafting Team on Article 2/ UN FCCC
31 May - 2 June	TBD	Working Group II - Lead Authors
Week of 24 July	Geneva	Working Group III - Third Session
24-28 July	TBD	Working Group I - Lead Authors
16-20 October	TBD	Working Group II - Third Session
27-29 November	Madrid	Working Group I - Sixth Session
11-15 December	TBD	IPCC - Eleventh Session



Ref (910)

# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION

Nairobi, 10-12 November 1994

IPCC-X/Doc. 6, part II, Rev.1  
(1.XI.1994)  
Agenda item: 5.2

ENGLISH ONLY

BUDGET ESTIMATE UNTIL COMPLETION OF THE  
IPCC SECOND ASSESSMENT REPORT

(Submitted by the Secretary)

The revisions to the text are shown in bold letters.

1. All amounts shown are in Swiss Francs (CHF) unless otherwise indicated.

#### ACTIVITIES IN 1995

2. The following meetings are planned for 1995:

- a. Meeting of lead authors, Working Group II, Geneva, 9-13 January 1995
- b. Meeting of the Drafting Team on the IPCC study on Article 2/UN FCCC, Athens, 21-24 February 1995; the Government of Greece has kindly offered to host this meeting
- c. Meeting of the lead authors, Working Group III, place to be decided, 13-15 March 1995
- d. Meeting of lead authors, Working Group I, place to be decided, 14-17 March 1995
- e. Workshop on droughts and desertification and climate change, place and time to be decided
- f. Third Session, Working Group III, Geneva, 26-29 June 1995
- g. Meeting of lead authors, Working Group I, place to be decided, 24-28 July 1995
- h. Fifth Session, Working Group I, Madrid?, 20-24 November 1995 (Spain offered to host the session earlier scheduled for July 1995)
- i. Third Session, Working Group II, place and time to be decided
- j. Ninth Session, IPCC Bureau, Geneva, 25-26 (a.m. only) September 1995 - may change to a different venue and later date
- k. Eleventh Session, IPCC, Geneva, 26 (p.m. only)-29 September 1995 - may change to a different venue and later date.

#### Assumptions with regard to other meetings

It is assumed that:

- a. no more meetings of lead authors would be required for Working Groups I and III;
- b. two more meetings of lead authors for Working Group II would be needed;
- c. some meetings of lead authors of individual chapters may be needed;
- d. the lead authors would attend the sessions of their respective Working Groups.

An additional 2-day session of the IPCC Bureau in Geneva immediately either before or after the first session of the Conference of the Parties to the Climate Change Convention is also assumed.

#### NUMBER OF LEAD AUTHORS

3. The total number of lead authors needing financial assistance are 70 for the three Working Groups combined (20 for WG I + 30 for WG II + 20 for WG III). This may be an overestimate by one or so.

#### ASSUMPTIONS IN ESTIMATING THE BUDGET

4. The following assumptions are made in the costing:

- a. an average cost of 6,300 per individual journey (unchanged from earlier years);
- b. the average cost per day of a Working Group/ Bureau/ Panel session of 39,000 (unchanged from earlier years);
- c. the annual Secretariat support costs of 400,000 (unchanged from earlier years); these support costs include staff salaries (excluding those of the IPCC Secretary and the Senior Programme Officer), routine mailing and communication, equipment and routine photocopying. The Secretariat travel is, however, an additional and variable component.

It is also assumed that one expert or representative each from 100 developing/transitional economy countries will attend each Working Group/IPCC session.

BUDGET ESTIMATE FOR PLANNED MEETINGS IN 1995

TABLE 1

Event	DC/TE <sup>1</sup> support	Secr. travel	Other meeting costs	Total
Lead Authors WGII, 9-13 January	189,000	0	0	189,000
Drafting Team, 21- 24 February (5 DC/TE)	31,500	6,300	0	37,800
Lead Authors WGIII, 13- 15 March	126,000	6,300	10,000	142,300
Lead Authors WGI 14-17 March	126,000	6,300	0	132,300
Workshop droughts (80 DC/TE, 3 lang.)	504,000	6,300	63,350	573,650
Third session WG III	756,000	0	156,000	912,000
Lead Authors WGI 24-28 July	126,000	6,300	10,000	142,300
Fifth session WGI	756,000	6,300	0	888,300
Third session WG II (5 days)	819,000	6,300	195,000	1,020,300
Ninth session Bureau	75,600	0	58,500	134,100
Eleventh session IPCC	630,000	0	136,500	766,500
TOTAL	4,139,100	44,100	629,350	4,812,550

<sup>1</sup> DC stands for developing country and TE for a transitional economy country.



# BUDGET ESTIMATE FOR OTHER MEETINGS IN 1995

TABLE II

Event	DC/TE support	Secr. travel	Other meeting costs	Total
Lead Authors WGII	189,000	6,300	10,000	205,300
Lead Authors WGII	189,000	6,300	10,000	205,300
Lead Authors - chapters (30 DC/TE) - all WGs	189,000	0	0	189,000
IPCC Bureau	81,900	0	78,000	159,900
TOTAL	648,900	12,600	98,000	759,500

## BUDGET ESTIMATE FOR TRANSLATION/PUBLICATION

6. It may be recalled that the three reports of the Working Groups, forming part of the First Assessment Report (FAR), were translated into Chinese, French, Russian and Spanish as voluntary contributions by China, Canada, the former USSR and Spain respectively. They were published in English through arrangements made by the respective Working Groups: by Cambridge University Press for Working Group I arranged by UK, the Government of Australia for old Working Group II, and Island Press for old Working Group III arranged by the USA. The Chinese, Russian and Spanish versions were published and distributed by China, the former USSR and Spain respectively. The French version was published and distributed by the IPCC Secretariat. The Summaries for Policymakers and the IPCC Overview of the FAR, and the Summaries for Policymakers of the 1992 IPCC Supplement, were translated into the official UN languages by the IPCC Secretariat; these were published by a consortium of countries chaired by Canada in French, Russian and Spanish.

7. For the Second Assessment Report, it is assumed that the three Summaries for Policymakers (including Executive Summaries where warranted) and the IPCC synthesis will be translated and published as stand-alone volumes in each of the official UN languages (Arabic, Chinese, English, French, Russian and Spanish). It is further assumed that the total number of pages in the volume would be about 150.

8. The average cost of translation per page is CHF 200 per language. Thus, the cost of translation is estimated to be 180,000.

9. The cost of publishing 6,500 copies is estimated to be CHF 50,000. The language breakdown of the copies will be: English - 2,500; French, Russian and Spanish - 1,000 each; Arabic and Chinese - 500 each. The quality of the publication will be that of the French version of the Working Group Reports of the FAR.

#### BUDGET ESTIMATE FOR 1995

TABLE III

Object of expenditure	Cost (CHF)
Activities listed in Table I	4,812,550
Activities listed in Table II	759,500
Translation shown in para 8	180,000
Publication shown in para 9	50,000
Secretariat support costs from para 4.c	400,000
Secretariat travel, on IPCC business (INC/FCCC, COP-1, UNEP, others)	31,500
<b>TOTAL</b>	<b>6,233,550</b>

#### ESTIMATED CARRY-OVER FROM 1994 INTO 1995

10. From IPCC-X/Doc. 6, part I, Rev. 1, it may be seen that 1,804,483 could be carried over into 1995 from 1994.

#### EXPENDITURES CHARGEABLE TO GEF GRANT

11. Again from IPCC-X/Doc. 6, part I, Rev.1, it may be seen that 3,024,432 could be charged to the GEF grant in 1994. This at today's UN exchange rate (\$ 1.00 = CHF 1.28), amounts to \$2,363,000. The grant is for \$ 2,750,000 leaving a balance of \$387,000 equivalent to CHF 495,360. The workshop on droughts and desertification and climate change is an activity that was included for 1994 in the GEF funding request. A representation will be made by the IPCC Secretariat to UNEP, the implementing agency for the grant, to (i) allow the holding of the workshop in 1995 and (ii) utilize any unexpended balance in the grant for the participation of DC/TE countries in IPCC activities in 1995.

#### BUDGET DEFICIT FOR 1995

12. With the carry-over indicated in para 10 and the expenditure chargeable to the GEF grant for 1995 shown in para 11, the budget deficit for 1995 is estimated to be 3,933,600. In the event that

the GEF grant cannot be used for the workshop on droughts, the deficit will increase to 4,429,000.

#### NATIONAL GREENHOUSE GAS INVENTORIES (ABOUT 18 MONTHS BEGINNING JANUARY 1995)

13. The budget requirements for the phase II work programme beginning in January 1995 and extending for 18 months thereafter on national greenhouse gas inventories is estimated to be \$1,292,500 by OECD/IEA. The breakdown and description are given in the annex. A deficit of \$ 948,000 is shown for the period under consideration (vide page A-4, table 1, column on remaining needs). At the prevailing exchange rate, this amounts to CHF 1,214,000 which should be added to the budget deficit given in para 12.

Decisions as to whether or not and what parts of the programme can be transferred to the Subsidiary Body on Scientific and Technological Advice (SBSTA) to be established by COP-1 will necessarily influence this work programme and budget. The Panel may wish to address this issue.

#### List of Abbreviations Used

COP-1	First session of the Conference of the Parties to the UN FCCC
DC	Developing Country
IEA	International Energy Agency
INC/FCCC	Intergovernmental negotiating Committee for the UN FCCC
OECD	Organization for Economic Cooperation and Development
TE	Transitional Economy Country
UN FCCC	United Nations Framework Convention on Climate Change
WG	Working Group

## IPCC/OECD/IEA Programme on National GHG Inventories

### Proposed Phase II Work Programme 1995/96

**Background:** Phase I of the IPCC/OECD Programme was initially established for a three year period from mid-1991 to mid-1994. To allow completion of the Phase I programme it has been extended through the end of 1994 and more recently the name has been changed to the IPCC/OECD/IEA Programme on National GHG Inventories. In early 1994, the Programme distributed *IPCC Draft Guidelines for National GHG Inventories* for worldwide review, in 6 UN languages (Volume 3 in English only). In February 1994, the Draft Guidelines were adopted with minor modifications by the INC/FCCC as the interim methodology for communication of national inventories under the Framework Convention. IPCC WGI approved the draft Guidelines with proposed amendments, in Maastricht, in September 1994. The draft Final Phase I IPCC Guidelines will be forwarded to IPCC Plenary in November 1994 and upon approval, completed and distributed in early 1995.

Regarding future work, the INC has requested the IPCC to continue to develop its recommendations on inventory methods. A recent INC decision reads:

... that the question of methodological issues should be reviewed at its eleventh session in the context of its final recommendations to the COP, taking into account that such methodologies would continue to evolve in the light of improved scientific understanding and practical experience; and further decides to invite the IPCC to continue its work on methodologies, particularly those relating to inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol... (13 April 1994, United Nations General Assembly document A/AC.237/55, annex 1, decision 9/1)

As early as Spring 1994, the INC/IPCC bureau meeting discussed the extension of the inventories programme into a "Phase II." A Phase II programme was originally planned to begin in mid-1994 and to extend 18-months through the end of 1995. Phase II would aim to improve the existing methodology and extend it to include methods for a wider number of greenhouse gases. The main product would be a set of revised methods for estimation and reporting. However due to insufficient funding, the completion of Phase I was delayed and Phase II was not initiated as planned. Instead the programme has directed resources as a priority to completion of Phase I products. Given present resource constraints, it is unlikely that Phase II could begin before January 1995.

**Proposed Phase II programme:** The Phase II programme needs to be carefully timed to meet the needs of the ultimate audience which is the Conference of the Parties (COP) to the FCCC. The INC recently drafted a provisional recommendation to the COP 1 on the subsidiary bodies (A/AC.237/WG.I/L.21), which identifies functions of the Subsidiary Body for Scientific and Technical Advice (SBSTA) in the area of inventories and more generally, common methodologies. The SBSTA is to:

- seek, in particular from the IPCC, and provide advice to the COP on the development, improvement and refinement of comparable methodologies for, inter alia, national inventories of emissions and removals of greenhouse gases;
- provide guidance and advice to the Parties on the use of agreed methodologies.

If the COP accepts this recommendation then the SBSTA will be the main client for products of the IPCC/OECD/IEA inventories programme. However SBSTA will meet for the first time in September/October 1995 and it is difficult to anticipate their role and guidance in advance of their first meeting.

The proposed IPCC programme therefore must be transitional and flexible to be able to incorporate to the extent possible requests from the COP/SBSTA/SBI. For example the programme may need to accommodate additional requests for work on inventory methodologies as well as requests on the timing and content of products that are presently planned. The work plan also should contain

elements that may eventually be transferred elsewhere if desired by the COP/SBSTA. At the same time, the IPCC may want to identify elements of the programme which depend closely on the science of climate change and for which it would like to maintain oversight. To allow the programme to continue to produce timely and high quality results these issues should be agreed between IPCC and COP/SBSTA at the earliest possible moment.

Funding is also an essential step in establishing a Phase II programme. A revised statement on budget and finances for the programme shows that the total programme cost is estimated to be 1.3 million US\$ (Table 1). The Phase II budget is based on the experience with Phase I expenditure. It is desirable to have approximately fifty per cent of full Phase II funding in place in order to initiate the programme. With present commitments from IPCC Member governments and contributions from the IPCC Trust Fund itself, we are still approximately \$300,000 short of achieving that goal (Table 1). Further, roughly two-thirds of available funds are dedicated to developing country outreach and hence would not be available to fund the technical work programme on methodologies development. As can be seen in Table 2, the technical work programme represents a large portion of the total budgeted cost of the Phase II programme.

**Action Required:** Approval of the proposed Phase II work programme is requested from IPCC Plenary. The Plenary is also requested to consider which of the main programme elements it believes should remain in its domain over the life of the programme and which elements could appropriately be transferrable to the Conference of the Parties or its subsidiary bodies if they so decide. This issue should also be revisited in 1995 at the time the SBSTA starts working. Finally, IPCC Plenary is requested to approve the proposed budget for the programme and to provide guidance on possible sources of funding.

## Draft Work Programme and Budget, 1995/1996

**Objective:** The Phase II programme aims to develop revised and extended Guidelines for National GHG Inventories. Possible key changes from the current Guidelines include: extension to cover additional GHG (i.e. PFCs, HFCs, SF<sub>6</sub>); development of revised or initial default methods for certain sources of CH<sub>4</sub> and N<sub>2</sub>O; and overall improvements and changes to the Guidelines as judged necessary by national experts after initial experience with their use and in light of the review of national programmes by the COP or its subsidiary bodies.

The programme is designed to remain flexible to incorporate to the extent possible requests from the COP/SBSTA/SBI. The programme is proposed as an 18 month to two year transitional period; by the end of that period it is expected to be turned over to a more permanent institutional home as identified by the COP/SBSTA.

### Major programme elements

**1) Methods Development (IPCC):** A new round of expert group work on specific technical areas of the methodology will be initiated, to provide recommendations for improved methods for Phase II Guidelines. These groups will address the many points for improvement identified in the existing Guidelines and in particular improved methods for CO<sub>2</sub> removals from land use change and forestry and CH<sub>4</sub> from waste and land use change. They would also propose initial methods for N<sub>2</sub>O and CO<sub>2</sub> from agricultural soils and "new" GHG (e.g. PFCs, HFCs, SF<sub>6</sub>). Expert Groups would be established in the following areas: removals and emissions of CO<sub>2</sub> from land use change and forestry; land use data and remote sensing; CH<sub>4</sub> from coal mining, handling and processing; CH<sub>4</sub> from oil and gas systems; CH<sub>4</sub> from rice; CH<sub>4</sub> from animals and manure; N<sub>2</sub>O and CO<sub>2</sub> from agricultural soils; GHG from biomass burning; CH<sub>4</sub> from solid waste disposal and wastewater treatment; and new GHG from industrial processes. As necessary expert groups could also be established to provide review and recommendations for the methods on other emission sources.

**2) Technical Outreach:** Detailed plans for further technical outreach work will be developed in cooperation with other sponsors on: a) development of centers expertise in developing and transitional regions, and b) standard methods for data collection, measurement and analysis to assist national experts to improve basic inventories and methods. Technical outreach provides a critically important source of information for the development of methods and improving the quality of methods by providing national and regional information.

**3) Review and Evaluation of National Inventory Information:** An important step in improving methods for estimation and reporting is to critically review available inventories and supporting information, ranging from the emission results to key assumptions. As in Phase I, the programme would analyse inventories that had been submitted under the FCCC as well as other available national inventories for the purpose of methods development. An IPCC workshop will be held to consider the results of the study in 1995. Recommendations from the exercise will be considered when developing draft revisions to the Guidelines. In connection with this review, and in cooperation with a parallel exercise conducted by the Climate Change Secretariat, a prototype central data system which was developed under the Phase I programme, will be tested.

**4) Reconciliation with the Science:** A workshop will be held to provide expert review of the scientific credibility of national inventory results obtained using the IPCC methods. It will compare the inventory results with global and regional GHG cycles and balance information.

**5) Document and Software Preparation:** Based on these four major streams of work, revisions to the Draft Phase I Guidelines will be drafted, approved and finalised. Similar to Phase I, a revised set of software would accompany the written volumes. Written documents will be translated to appear in the 6 UN languages.

TABLE 1 - OVERVIEW OF PHASE I AND PHASE II FUNDING STATUS (US\$)					
			Budget	Total Funds Available	Remaining Needs
Phase 1 Completion					
	Technical work		140000	140000	0
	Developing country				
	outreach		170000	170000	0
	Total		310000	310000	0
Phase 2					
	Technical work		960000	130000	830000
	Developing country				
	outreach		332500	214000	118500
	Total		1292500	344000	948500
Phase 1 Completion and Phase 2					
	Technical work		1100000	270000	830000
	Developing country				
	outreach		502500	384000	118500
	Total		1602500	654000	948500
Immediate Funding Need - Phase 2					
	50% of Phase 2				
	Total		646250	344000	302250

TABLE 2 - PHASE I COMPLETION AND PROPOSED PHASE II BUDGET			
Budget to Complete Phase I (Issue Final Phase I Guidelines)			
(October - December 1994)			
			US\$
Translation			170000
Publication			120000
Distribution			20000
	Total		310000
Proposed Budget for Phase II - 18 months			
(Estimated to begin January 1995)			
			18-mo
Manager			200000
Travel			30000
Support Staff			210000
Mail & Admin Costs			20000
Expert Groups Support			100000
Software Development			100000
In-Depth Review Study			50000
Expert Workshop (Science)			100000
Outreach coordinator*			232500
Technical Outreach			100000
Publication, Trans, Dist			150000
	Total		1292500
*Includes travel, mail and administrative costs associated with the post.			



Ref (P.10)



# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE  
TENTH SESSION

IPCC-X/INF. 3  
(11.XI.1994)

Nairobi, 10-12 November 1994

ENGLISH ONLY

## SUMMARY OF PHASE I ACTIVITIES

**The IPCC/OECD Work Programme on  
National Greenhouse Gases Inventories**

**PHASE I ACTIVITIES**

Prepared by:

OECD Environment Directorate  
IPCC WGI Technical Support Unit

7 November 1994

## **1. Introduction: The IPCC/OECD Programme**

### **1.1 Background**

### **1.2 Programme Oversight**

### **1.3 Guidelines for National GHG Inventories**

## **2. Technical Co-operation**

### **2.1. Country Studies**

### **2.2. Regional Workshops**

## **3. Technical Development**

### **3.1. Background**

### **3.2. Summary of Improvements in Phase I Methodologies**

#### **3.2.1. General**

#### **3.2.2. Reporting Instructions**

#### **3.2.3. Computer Software**

## **4. Review of Existing National Inventory Data**

### **4.1. Transparency Workshop and In-Depth Review**

### **4.3. Overview of the Preliminary National GHG Inventories Interim Report**

## **5. Database Development**

## **6. Future Work**

## **7. Finances**

*This report summarizes the status of activities carried out by the IPCC<sup>1</sup> Working Group I Technical Support Unit and the OECD Environment Directorate as part of the Phase I work plan of the IPCC/OECD Programme on National GHG Inventories. Phase I work began in 1991 and has continued to the present (i.e. October 1994). Phase I is scheduled to be completed in early 1995 with the production and distribution of the IPCC Guidelines for National Greenhouse Gas Inventories.*

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## 1. Introduction: The IPCC/OECD Programme

### 1.1 Background

At the time of the Second World Climate Conference in Geneva in October and November of 1990, the need for a standard methodology for compiling national greenhouse gas (GHG) emission inventories had already become apparent. In February of 1991, the Organization for Economic Co-operation and Development (OECD) took the initiative to convene an experts meeting to review the state of the science regarding greenhouse gas (GHG) emissions estimation methods, to make recommendations on the methods, and to make recommendations regarding a more systematic work programme for the further development of the methods. Experts from both OECD and non-OECD countries participated.

The meeting produced a background document on GHG emissions—the "*OECD Final Report*"<sup>2</sup>, which was distributed in August of 1991 as a starting point for the development of the IPCC methodologies for estimating national GHG emissions. This document covered six direct and indirect GHGs: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, CO, NO<sub>x</sub>, and NMVOCs. In March of that year, a work plan was adopted by the IPCC to be carried out by a joint programme including IPCC, OECD, and IEA, with the oversight of IPCC Working Group I. The Programme was designed as a transitional one, to be transferred for long term implementation to a permanent climate change secretariat after one is established by the Conference of Parties (COP) to the FCCC. Support for the Programme was to be provided via voluntary contributions by interested governments and intergovernmental organizations. The initial collection of national data began in September of 1991, and in December the first IPCC workshop was held. At this workshop, comments were made on the methods, and the basic principles and priorities of the IPCC/OECD Programme were established.

The overall goal of Programme is to assist participating countries in their efforts to develop methodologies for estimating and reporting national GHG inventories under the Framework Convention on Climate Change (FCCC). Key Programme objectives are:

- to achieve international consensus on a methodology for the calculation and reporting national GHG emissions;
- to support outreach efforts in order to encourage widespread use of the methodology by all IPCC member countries; and

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<sup>1</sup> Intergovernmental Panel on Climate Change.

<sup>2</sup> The full title is: *OECD Estimation of Greenhouse Gas Emissions and Sinks, Final Report from the OECD Experts Meeting, 18-21 February 1991, Revised August 1991.*

## IPCC/OECD Programme, Phase I—7 November 1994

- to establish procedures and a data management system for the collection, review, and publication of national data.

The Programme's principal product—the *IPCC Guidelines for National Greenhouse Gas Inventories*—seeks to build on available information to develop a framework for GHG inventory development which is both comprehensive and flexible. The IPCC methodology aims at comprehensive coverage of sources and sinks of GHG while allowing countries to estimate emissions at various levels of detail—from relatively simple to highly disaggregated—depending on their own needs and capabilities. At the same time that the *IPCC Guidelines* aim to provide this flexibility, they also ensure basic consistency and comparability among national inventories. To this end, the *Guidelines* include standardized reporting and documentation requirements.

### 1.2. Programme Oversight

The IPCC/OECD Programme is guided by the IPCC/OECD Liaison Group (IOLG), which meets approximately every eight weeks. The group includes representatives of the OECD Environment Directorate, IEA Energy Statistics Division, IPCC/WGI Technical Support Unit, UN/FCCC Secretariat, CEC and UNECE Task Force on Inventory Emissions, the German Federal Environment Agency, the Dutch RIVM, the UK Department of the Environment, the IPCC Secretariat, UNDP, the UNEP/GEF Climate Unit, the US Country Studies Management Team, the Institute for Environmental Studies of the Free University of Amsterdam, the Oxford University Environmental Change Unit, the Stockholm Environment Institute—London, and ICF Incorporated. In their totality, they include the various intergovernmental organisations and research institutes working closely with the Programme, the Programme's major sponsors, and the consultants carrying out country studies under UNEP, UNDP and US-CSMT programmes. General goals and priorities are set by the IOLG, progress is reviewed, and action items assigned. Besides acting as an oversight body, the IOLG allows the various parties to remain aware of Programme activities, and for the various efforts to be coordinated. UNECE participation allows for exchange between two programmes with similar objectives, and facilitates the development of procedures to allow IPCC and CORINAIR inventories to be interconverted.

### 1.3. Guidelines for National GHG Inventories

The Phase I *Guidelines*, currently being completed, cover the major categories of GHG. All sources/sinks categories are covered in *Volume 3: The Reference Manual*. Methodological emphasis is given to CO<sub>2</sub> and CH<sub>4</sub>. Default methods for estimating these two gases are outlined in an easy-to-use step-by-step format in *Volume 2: The Workbook*. *Volume 1: The Reporting Instructions* is designed to allow for consistency, transparency, and comparability among national GHG inventories. The *Reporting Instructions* are thus to be used by all countries in reporting their GHG inventories, even in cases where the IPCC default methodologies were not used to estimate emissions.

In February of 1994, the draft IPCC Phase I *Guidelines* were adopted (with minor changes) by the International Negotiating Committee for a Framework Convention on Climate Change (INC/FCCC) to provide an interim methodology. They are currently being revised based on comments received through formal review. The *Guidelines* and revisions were approved by the IPCC Working Group I at its September meeting at Maastricht, and will be submitted to the full IPCC Plenary in November. In early 1995, the Phase I *Guidelines* are scheduled to have been translated into the six UN languages, and distributed to all INC countries. The *Guidelines* are scheduled to be submitted to the first Conference of the Parties (CoP-I) in March of 1995.

## IPCC/OECD Programme, Phase I—7 November 1994

Table 1—Key Documents of the  
IPCC/OECD Joint Programme on National GHG Inventories\*

- OECD 1991. *Estimation of Greenhouse Gas Emissions and Sinks, Final Report*. August, Paris, France.
- IPCC/OECD, 1991a. *Workshop on National Inventories of Greenhouse Gas Emissions and Sinks: Proceedings*. 5-6 December, Geneva, Switzerland.
- IPCC/OECD 1991b. *Workshop on National Inventories of Greenhouse Gas Emissions and Sinks, Proceedings*. December, Bracknell, UK.
- IPCC/OECD 1992. *National Inventories of Net Greenhouse Gas Emissions, IPCC Guidelines for Preparation and Reporting, Volume 1: Simplified Workbook and Software, CO<sub>2</sub> Emissions from Energy Consumption Module (CEEM)*. August, Paris, France.
- IPCC/OECD, 1993a. *Preliminary IPCC National GHG Inventories: In-Depth Review*. Paper presented at IPCC/OECD Workshop on National GHG Inventories: Transparency in Estimation and Reporting, 30 September to 2 October, 1992, Bracknell, UK.
- IPCC/OECD, 1993b. *National GHG Inventories: Transparency in Estimation and Reporting, Parts I and II*. Final Report from the Workshop held from 30 September to 2 October, 1992, Bracknell, UK.
- IPCC/OECD, 1994. *IPCC Draft Guidelines for National Greenhouse Gas Inventories, Volume 1: Reporting Instructions, Volume 2: Workbook, and Volume 3: Reference Manual*. Paris, France.
- Van Amstel, 1993. *Methane and Nitrous Oxide: Methods in National Emissions Inventories and Options for Control: Proceedings*. 3-5 February, Amersfoort, the Netherlands.
- IPCC, 1995. *IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1: Reporting Instructions, Volume 2: Workbook, and Volume 3: Reference Manual*. (Forthcoming,) Paris, France.

\* Many reports on regional workshops—too numerous to be listed individually here—included important input regarding the *Guidelines* from participants.

## 2. Technical Co-operation

### 2.1. Country Studies

Several countries and international organisations are supporting country inventory studies of anthropogenic GHG. These country studies programmes aim to:

- improve the quantity and quality of baseline data required for a GHG emissions inventory;
- enhance the capacity of the participating countries to estimate, monitor, and report national GHG emissions and sinks; and
- support the development of a standard methodology for calculating and reporting national inventories of GHG sources and sinks for use by the Parties to the FCCC.

Sponsors of country studies programmes include the United Nations Environment Programme/Global Environmental Facility (UNEP/GEF), the United Nations Development Programme (UNDP), the United States Country Studies Management Team (US-CSMT), and GTZ of Germany. Other OECD governments have also initiated smaller scale, bilateral country study arrangements.

## **IPCC/OECD Programme, Phase I—7 November 1994**

The Country Studies Programmes have become an important part of the outreach activities of the IPCC/OECD Programme. The IPCC/OECD Secretariat has built on the funding, which is provided by sponsors, to ensure that the IPCC methodologies are more widely diffused and used to prepare inventory reports. Coordinating with country study teams, the IPCC/OECD Secretariat has provided training assistance. In return, the country teams have been an important "testing ground" for IPCC methodologies. This experience has been an important source of critical comments which have facilitated refinement of the methodologies as well as leading to international acceptance of the methodologies.

### **2.2. Regional Workshops**

As part of the Programme to support country case studies on GHG inventories, the UNEP/GEF Climate Unit and other intergovernmental organisations and countries have also provided funds to support regional workshops on GHG emissions inventories in Africa, South America, Asia and South Pacific, and Central and Eastern Europe. Members of the staff of the IPCC/OECD Programme participate whenever possible. The objectives of the workshops are to:

- explain the role of national GHG emission inventories and the IPCC/OECD Programme in the context of the FCCC;
- explain the overall philosophy of the IPCC/OECD methodology;
- assist with training on basic methodologies for calculating priority emissions categories;
- demonstrate and make available the IPCC software for estimating GHG inventories;
- test and improve methods, manuals, and training materials;
- encourage comments and suggestions from national experts from the region regarding the applicability of the IPCC methodologies to that particular region; and
- establish contacts with experts from those regions/countries participating in the workshops.

**IPCC/OECD Programme, Phase I—7 November 1994**

**Table 3—Training Workshops with the Participation of the IPCC/OECD Programme**

Workshop	Date and venue	Countries attending	Sponsors
Bracknell GHG pilot training workshop	Sept 1992, Bracknell, UK.	China, India, Indonesia, Nigeria, OECD countries, Poland, Venezuela.	OECD, UNEP, UK
Training workshop	May 1993, Dakar, Senegal.	Senegal and Morocco	UNEP
Training workshop	June, 1993, Nairobi, Kenya.	Gambia, Kenya, Nigeria, Tanzania, Uganda, Zambia, Zimbabwe.	UNEP
Latin America and Caribbean regional w/shop	March, 1993, Sao Paulo, Brazil.	Argentina, Bahamas, Bolivia, Brazil, Chile, Colombia, Cuba, Costa Rica, Dom. Rep., Ecuador, Jamaica, Mexico, Nigeria, Panama, Paraguay, Peru, Salvador, Sri Lanka, Surinam, Uruguay, Venezuela.	Brazil, UNEP, USA
Central and Eastern European regional workshop	October 1993, Bratislava, Slovakia.	Albania, Belarus, Bulgaria, Croatia, Czech Rep., Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Rumania, Slovakia, Slovenia, Ukraine.	UNEP, CE, Germany, Netherlands, Slovakia
Workshop on national greenhouse gas methodologies	December 1993, Washington, DC	Bulgaria, Chile, Costa Rica, Czech Republic, Egypt, Gambia, Kazakhstan, Mexico, Mongolia, Nigeria, Peru, Pohnpei, Poland, Venezuela, Zimbabwe.	US-CSMT
African Regional Workshop	March 1994, Nairobi, Kenya	Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cote d'Ivoire, Egypt, Eritrea, Ethiopia, Gambia, Ghana, Guinea-Bissau, Kenya, Lesotho, Liberia, Mali, Malawi, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, Sudan, Swaziland, Tanzania, Tchad, Togo, Tunisia, Uganda, Zambia.	UNEP, GTZ, UNDP, US-CSMT, START
Asian-Pacific Regional Seminar	March 1994, Osaka	Australia, Bangladesh, China, India, Indonesia, Japan, Korea, Malaysia, Maldives, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Viet Nam.	JEA, OOEBC, Osaka Prefectural and City Governments
Training workshop	April 1994, San Jose, Costa Rica	Costa Rica, Honduras, El Salvador, Nicaragua, and Panama	UNEP
Scientific Development and Research Applications of Greenhouse Gas Inventories	April 1994, Subic Bay, Philippines	Australia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam	START/SARCS, UNDP/GEF
Region Workshop on National Inventories of Anthropogenic Emissions and Removals of GHG for Asia-Pacific Countries	October 1994, Chiang Mai, Thailand	Australia, Bangladesh, China, Fiji, Indonesia, Iran, Japan, Kiribati, Korea, Malaysia, Maldives, Mongolia, Nepal, New Zealand, Philippines, Solomon Islands, Sri Lanka, Thailand, Western Samoa	UNEP, Australia, US-CSMT



### 3. Technical Development

#### 3.1. Methods Development Process

During the three years since the publication of the *OECD Final Report*, the IPCC/OECD Programme has devoted considerable effort to developing improved methodologies to address major limitations or areas of uncertainty in methods for priority gases and source sectors. Significant improvements in methodologies have thus been achieved for CO<sub>2</sub> and CH<sub>4</sub>, and incorporated in the *IPCC Draft Guidelines for National Greenhouse Gas Inventories*.

The improved methods are based on information assembled through a number of mechanisms. First, the IPCC/OECD Programme established informal expert working groups to recommend improvements to methodologies in key areas. The primary focus of this effort was on key uncertainties in the estimation of emissions from major source categories of CO<sub>2</sub>, and CH<sub>4</sub>. One group addressed CO<sub>2</sub> emissions from land use change and forestry. Seven individual groups covering specific source types made detailed recommendations on CH<sub>4</sub>. In addition, the Dutch National Institute of Public Health and Environmental Protection (RIVM), in consultation with the IPCC/OECD Programme, convened two additional working groups to make recommendations on major source categories for N<sub>2</sub>O. These recommendations are incorporated in the *Draft Guidelines*. All of the CH<sub>4</sub> and N<sub>2</sub>O expert groups were convened to discuss and finalize recommendations during a major international workshop organized by RIVM in Amersfoort, the Netherlands in February, 1993. Results of this meeting and the recommendations of the expert group are documented in the *Proceedings* (van Amstel, 1993).

Comments received from national experts in both developing countries and countries with economies in transition have been especially valuable. It has been recognized from the beginning that the literature on emissions inventory methodologies is dominated by experience from the OECD countries. Therefore, a special effort was made to understand where the methodologies and/or default data need to be adapted to make them more relevant and useful to experts in non-OECD countries. Comments from these experts are being facilitated by a large number of country studies being supported by UNEP, by other international organizations, and by individual donor countries.

Regional workshops (See Table 3—*Training Workshops with the Participation of the IPCC/OECD Programme*) have been a key source of input regarding the *Guidelines*. Through these fora, the Programme has received comments on the estimation methodologies from developing countries and countries with economies in transition. These comments have allowed the Programme develop estimation methodologies which are more applicable to conditions in these countries. They have also allowed the Programme to benefit from experience gained by these countries in carrying out emissions inventories.

Another major source of information for improving methodologies has been the review and comparison of preliminary national inventory estimates provided to the IPCC/OECD Programme. Review and comparison of the methods used has identified a number of areas in which work of individual countries can be used to improve the general methods recommended for all parties.

The IPCC/OECD Programme has received technical comments through a number of other channels over the past two years. Beyond the countries that have contributed data and analysis directly, many more indicated that they are working on inventories, and have reviewed and commented on the draft methodologies. The inventory methodologies were discussed at a number of IPCC meetings, workshops, and other technical meetings, providing another important source of comments.

In the spring of 1994, the three volume *Draft Guidelines* were released in the six United Nations languages to national and scientific experts in some 170 countries for review and comment. This included IPCC Technical Contacts, participants in expert groups and regional workshops, as well as other national and technical experts and interested parties. Comments were received from 61 experts in 27 countries as well as one intergovernmental and one regional economic organization. Countries from which comments were received are divided roughly equally between developed countries (14) on one hand, and developing countries and countries with economies in transition (13) on the other. A core group of 27 experts met at an IPCC/OECD expert workshop to agree on final proposed revisions to the draft IPCC inventory *Guidelines*.<sup>3</sup> The group included participants (in addition to four OECD Environment Directorate staff members) from seven OECD countries, three developing countries, one country with an economy in transition, and the European Community. This consensus is summarised in a revisions document that has been approved by the IPCC Working Group I, and which is submitted to IPCC Plenary in November for final approval.

### 3.2. Summary of Improvements in Phase I Methodologies

#### 3.2.1. Estimation Methodologies

Fundamental to almost of the revised methodologies is the tiered approach concept intended to match methodologies to the experience and data available within the countries. This concept begins with a first tier (or default) method, designed to include the minimum level of detail necessary for credible estimates. Default data and assumptions are provided wherever possible to assist national experts in preparing a first inventory. A second tier approach is possible using the same calculation structure as *Tier 1*, but substituting country specific values based on local measurements or analysis. This may also involve a finer level of detail by subdividing categories and/or working with sub-national geographic units, but the results can always be aggregated to match the minimum level of detail. Finally, a third tier is an open-ended approach, allowing individual countries to make use of very detailed engineering studies, detailed survey data, etc. to develop emission estimates. In all cases, results must be presented in a standardized format. *Volume 3* of the *Guidelines*—the *Reference Manual*—presents all available tiered methodologies for the various source categories. *Volume 2*—the *Workbook*—presents the first tier or "default" methods. For details regarding the status of the development of GHG inventory methods by source category, see *Table 2—Summary of GHG Inventory Methodology Development* below.

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<sup>3</sup> Held from 4 to 8 July, 1994 at the Church House Conference Centre, Westminster, London.

Table 2—Summary of GHG Inventory Methodology Development

Source Sector	Source Sub-Sector	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO, NO <sub>x</sub> , NMVOC*
Energy	Fuel Combustion (reference method)	<ul style="list-style-type: none"><li>• Reference method based on fuel data only</li><li>• Methods simplified &amp; clarified</li><li>• Fraction oxidized (combustion efficiency): variable default values by fuel type included</li><li>• Discussion of levels of detail &amp; linkages between levels added</li></ul>	Default methods are not provided	Default methods are not provided	Default methods are not provided
	Stationary and Mobile Combustion (detailed technology based approach)	Default methods are not provided	<ul style="list-style-type: none"><li>• Preliminary default emissions factors provided</li></ul>		
			<ul style="list-style-type: none"><li>• Draft <i>Guidelines</i> updated to add references to the methods and emission factors compiled by:<ul style="list-style-type: none"><li>* UNECE/CORINAIR</li><li>* US EPA</li></ul></li></ul>		
	Burning of Traditional Biomass Fuels	<ul style="list-style-type: none"><li>• Method follows earlier calculation structure (based on Crutzen &amp; Andreae, 1990)</li><li>• New default emissions ratios developed for specific categories of biomass</li></ul>			
	Fugitive Emissions from Coal Mining, Handling, and Utilization	Default methods are not provided	<ul style="list-style-type: none"><li>• Tiered structure defined</li><li>• Includes surface &amp; underground mines</li><li>• Separate factors for post-mining activities are provided</li><li>• Default factors are global average ranges</li></ul>	(Insignificant)	(Insignificant)

\* A large body of work already available regarding the estimation of CO, NO<sub>x</sub> and NMVOC emissions. These gases have thus been covered in the IPCC methodology as lower priority than CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.

Source Sector	Source Sub-Sector	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO, NO <sub>x</sub> , NMVOC*
	Fugitive Emissions from Oil and Natural Gas Systems	<ul style="list-style-type: none"> <li>Default methods are not provided; users are referred to existing literature</li> </ul>	<ul style="list-style-type: none"> <li>3-tiered structure defined</li> <li><i>Tier 1</i> default values provided for broad regions</li> </ul>	(Insignificant)	(Insignificant)
Industrial Processes and Solvent Use		<ul style="list-style-type: none"> <li>Cement production is the only industrial process covered in detail. The method has been modified to accept clinker production data.</li> </ul>	<ul style="list-style-type: none"> <li>Several industrial process categories more clearly defined but default methods are not provided</li> </ul>		<ul style="list-style-type: none"> <li>NMVOC are the only significant GHG emitted from solvent use. This source is briefly discussed in the <i>Reference Manual</i>, but default methods are not provided</li> </ul>
Agriculture	Domestic Livestock Enteric Fermentation and Manure Management	(Not applicable)	<ul style="list-style-type: none"> <li>Calculations for emissions from animals &amp; from manure combined</li> <li>2-tiered approach defined</li> <li>Default data for broad regions provided</li> <li>Corrections made to previous emission factors to better account for: <ul style="list-style-type: none"> <li>* Temperature</li> <li>* Management practices</li> </ul> </li> </ul>	(Not applicable)	(Not applicable)

\* A large body of work already available regarding the estimation of CO, NO<sub>x</sub> and NMVOC emissions. These gases have thus been covered in the IPCC methodology as lower priority than CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.

Source Sector	Source Sub-Sector	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO, NO <sub>x</sub> , NMVOC*
	Flooded Rice Fields	(Not applicable)	<ul style="list-style-type: none"><li>• Calculation format open-ended, allowing further disaggregation if data are available</li><li>• <i>Tier 1</i> accounts for<ul style="list-style-type: none"><li>* Water management regime</li><li>* Temperature</li></ul></li><li>• Default data at country level included</li></ul>	(Not applicable)	(Not applicable)
	Agricultural Burning	<ul style="list-style-type: none"><li>• Follows earlier calculation structure (based on Crutzen &amp; Andreae, 1990)</li><li>• New default emissions ratios developed for specific categories of biomass</li></ul>			
	Agricultural Soils	<ul style="list-style-type: none"><li>• Default methods are not provided</li><li>• The development of methodologies for estimating possible emissions/removals of CO<sub>2</sub> and CH<sub>4</sub> from agricultural soils—due to the use of peat compost as a soil amendment, for example—has been identified as an area for future work.</li></ul>	<ul style="list-style-type: none"><li>• Default methods are not provided</li><li>• Earlier methodology not adequately supported by available data; new method steps back</li><li>• Emissions as function of:<ul style="list-style-type: none"><li>* Total nitrogen applied: chemical &amp; organic fertilizer, and</li><li>* Biological fixation</li></ul></li></ul>	(Not applicable)	
Land Use Change and Forestry		<ul style="list-style-type: none"><li>• Number of recommended categories reduced to 4 key activities</li><li>• Concept of tracking biomass/carbon stocks over time introduced</li><li>• More default data and assumptions provided</li><li>• Highly simplified, but still the most complex and difficult set of calculations in the IPCC methodology, because of the need to take into account:<ul style="list-style-type: none"><li>* Net rather than gross emissions (or removals)</li><li>* Historic time lags</li></ul></li></ul>			

Source Sector	Source Sub-Sector	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO, NO <sub>x</sub> , NMVOC*
Waste	Landfills	<ul style="list-style-type: none"> <li>• Default methods not provided (CO<sub>2</sub> emissions from organic waste should not be included in national totals)</li> </ul>	<ul style="list-style-type: none"> <li>• Original methodology (based on Bingemer &amp; Crutzen, 1987) still recommended</li> <li>• Possible refinements discussed</li> <li>• More detailed approaches reviewed as alternatives</li> <li>• Basic data can be derived based on: <ul style="list-style-type: none"> <li>* Population</li> <li>* Amount of waste landfilled</li> </ul> </li> </ul>	(Not applicable)	(Not applicable)
	Wastewater Treatment	(Not applicable)	<ul style="list-style-type: none"> <li>• New category</li> <li>• Very preliminary methodology presented</li> <li>• Calculation is based on population, municipal &amp; industrial production data, and biochemical oxygen demand of wastewater flows</li> </ul>	(Not applicable)	(Not applicable)
	Waste Incineration	<ul style="list-style-type: none"> <li>• Default methods are not provided</li> <li>• New category</li> <li>• A brief discussion of this source is provided along with references to relevant literature</li> </ul>			<ul style="list-style-type: none"> <li>• Default methods are not provided; users are referred to existing methods</li> </ul>

### **3.2.2. Reporting Instructions**

The IPCC does not recommend a single set of methods for estimating GHG emissions per se. Rather, it seeks to provide guidance on available methods—including identification of "default methods", from the simple to the more complex—and to provide a common framework for the reporting of the inventories.

The *Reporting Instructions* are a separate volume of the *Draft Guidelines*, and are intended to be used by all countries in the preparation of final inventory reports. If the *Reporting Instructions* are accepted as mandatory by the Conference of Parties (CoP), the IPCC will have begun to establish a "reporting system" for use under the FCCC for national GHG inventories. The reporting system strives to achieve comparability, transparency and consistency among national data.

### **3.2.3. Computer Software**

Computer software has been provided to national experts to assist with the preparation of inventories. The Phase I version, which is scheduled for completion in March 1995, corresponds to the simple default methods covered in *Volume 2: Workbook* of the *Draft Guidelines*. This software operates on any IBM-compatible computer with relatively modest memory requirements. It can be used to perform the basic calculations needed to produce national estimates for the major categories of CO<sub>2</sub> and CH<sub>4</sub> emissions, and can also be used to produce a standard set of data tables in electronic form, for reporting purposes.

## **4. Review of Existing National Inventory Data**

### **4.1. Transparency Workshop and In-Depth Review**

An IPCC/OECD "Workshop on National GHG Inventories: Transparency in Estimation and Reporting" was convened at the IPCC/WGI Technical Support Unit at the UK Meteorological Office in Bracknell in September of 1992. The objective—to discuss and improve methodologies for the estimation and reporting of national inventories of GHG emissions and removals—was pursued through the presentation and discussion of:

- a detailed review of approximately twenty-five preliminary national GHG inventories prepared by the OECD, the IEA, and RIVM;
- detailed reports by eight countries on GHG inventory methodology and the "transparency" of inventory documents.

A major focus of the workshop was the development of reporting procedures to ensure comparability and consistency of data. A common reporting framework was designed to accommodate inventories based upon IPCC as well as other estimation methodologies. Workshop participants outlined necessary elements of a reporting structure which eventually were used to develop the *IPCC Reporting Instructions*.

### **4.2. Overview of the Preliminary National GHG Inventories Interim Report**

Two interim reports on national GHG inventories have been produced to date. They describe the general characteristics of the national inventory data received by the Programme, with the aim of summarising, for a wide IPCC audience, the main features of national GHG inventory results. These data are preliminary

results provided by participating countries in response to a request from the IPCC. The interim reports were prepared for the purpose of methods development and are distinct and separate from the official data collection which is occurring under the Convention.

Programme coverage has evolved since 1991 to now include data from 32 countries representing nearly 50 inventories. The geographic coverage of the submissions is diverse. OECD countries represent roughly half of the reporting countries. Twelve developing countries have also submitted data and another three reports are from Central and Eastern Europe (CEE).

All of the national reports contain CO<sub>2</sub> inventories, and most contain data for CH<sub>4</sub>. Most countries also appear to include complete coverage of major source categories for CO<sub>2</sub> and CH<sub>4</sub>; however few are reporting CO<sub>2</sub> removals by sinks. Just over half the national reports contain inventories for N<sub>2</sub>O, NO<sub>x</sub>, CO and NMVOC. Many of the inventories received are only partial in their coverage of sources of these gases.<sup>4</sup> Recently, official inventory data for developed countries began to become available from reports submitted under the Convention. These data were not available in Phase I. However, many of the reporting countries have actively participated in the IPCC Programme.

## 5. Database Development

The Programme commissioned a document entitled: *Preliminary Specifications for a Central Data Management System (CDMS)*. This paper formed the starting point for a detailed functional database design paper. This design paper details specifications required of a computer system for the central collection, review, and reporting of national GHG inventory data.

The design paper presents a conceptual view of the system and discusses its functional requirements. Non-technical considerations are also presented, and recommendations—i.e. system administration—are offered. The functional design presented is not specific to any particular hardware or software product, but is sufficiently detailed in data structure and functions to provide a firm basis for implementation with minimal additional study. A separate discussion document considers several possible alternatives for implementation, and identifies and describes three feasible solutions in comparable terms. It does not make recommendations, but provides base information for discussion and decision making at a future expert meeting regarding this topic.

Due to funding problems, the implementation of the database has been a low priority for the Programme to date. For this reason, the database has not been implemented. The Programme has nevertheless recognized the need for a computer system for storing and retrieving national emissions inventory data. Thus, the software for estimating GHG emissions is being modified to create the capability to store emissions inventory data for multiple countries and multiple years, allowing it to function as a simple database until a decision can be made on the more sophisticated one.

## 6. Future Work

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<sup>4</sup> The IPCC has not developed default methods for most sources of these gases, but has referred to standard methodologies existing in OECD countries.



The IPCC recognizes that the development of inventory methods is far from complete. Improvements to, and extensions of, the methods should be developed as soon as feasible. Recognizing this need, the IPCC will consider in November 1994 extension of the Programme for an 18-month period. The OECD and the IEA have been requested by the IPCC to continue their support for the Programme through this second phase. Plans for the continuation of the Programme beyond 1994 are tentative, however, dependent on work priorities identified by the IPCC and INC, and on funding. The IPCC Bureau has identified broad elements of the work to be proposed for the extension period. A major focus would be the development of improvements to the Phase I methodologies which would be proposed as additions to, or replacements of, sections of the existing three volume *Guidelines*.

## 7. Finances

Summary financial statements for the Phase I Programme are shown in Tables 4, 5, and 6. The financial statements summarise income (predominantly grants from Member countries and other international organisations) and expenditures that occurred since the Programme began in 1991.<sup>5</sup> They show the total Phase I Programme income for the three and a half year period to be \$1.878 Million (US); expenditures for the period are estimated to be \$1.710 Million. Some of the expenditures related to Phase I have not yet actually been incurred and are therefore estimated. If funds remain once Phase I has been completed, it is proposed that they be carried over to Phase II of the Programme.

Phase I has had several important donors, notably, UNEP/GEF (\$780,000), the IPCC Trust Fund (\$340,000), the United States Government (\$240,000) and the Commission of the European Communities (\$107,000). These donations provided roughly three-quarters of the Programme income. Smaller contributions, also essential, have provided a quarter of the total income. (Table 4)

Programme spending has increased progressively over the last few years, due to the increasing scale of the Programme. In 1992, the first full year of Phase I, approximately \$290,000 was expended, principally for staff salaries. 1992 was also the first full year that a Principal Administrator was assigned to manage the project. In 1993, as the methods development work stepped up and Programme spending increased to \$560,000. Roughly 40% went to support experts, both as consultants and to participate in various meetings on the subject. In 1994, expenditures totalled \$710,000; a major expenditure (\$290,000) is for translation and publication of the IPCC Guidelines volumes (both the draft and the final versions). Average annual expenditures for the period 1992-1994 were about \$520,000/year.<sup>6</sup> (Table 5)

Responsibilities for the programme are shared by the OECD Environment Directorate and the IPCC. The OECD is the lead coordinator for the technical work, and the IPCC the lead coordinator for training and outreach activities. While the OECD has overseen the majority of the expenditures (roughly 70% of the Phase I total) a portion of this included expenditures related to training and outreach.

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<sup>5</sup> Programme income was received and expenditures incurred at one of two locations: IPCC Working Group I/Technical Support Unit (located at the UK Meteorological Office) or the OECD Environment Directorate (located at the OECD Headquarters in Paris).

<sup>6</sup> Excludes 1991 because the Programme was only operating for part of the year.

**Table 4-Phase I Income**

<b>Donor</b>	<b>Amount in \$US</b>
Australia	71,000
Canada	75,000
France	17,000
Germany	46,000
Italy	17,000
Japan	11,000
Norway	20,000
Sweden	14,000
Switzerland	59,000
UK	15,000
USA	240,000
EC	107,000
IPCC Trust Fund*	340,000
OECD	66,000
UNEP	780,000
<b>Total:</b>	<b>1,878,000</b>

\* \$170,000 of these funds have not yet been received.

Table 5-Phase I Expenditures \*

	IPCC \$US	OECD \$US	Programme \$US
<b>1991</b>			
Staff	3,513	64,889	68,402
Staff Travel	0	0	0
Miscellaneous Consultants	0	4,431	4,431
Software Development Consultants	0	0	0
Methods Development Consultants	0	0	0
Expert Travel & Meeting Costs	71,056	4,103	75,159
Translation & Publishing	0	0	0
Miscellaneous	0	0	0
	1\$US=0.567£GB	1\$US=5.6421FF	
<b>Total 1991:</b>	<b>74,569</b>	<b>73,423</b>	<b>147,992</b>
<b>1992</b>			
Staff	55,086	130,347	185,433
Staff Travel	17,791	23,131	40,922
Miscellaneous Consultants	0	945	945
Software Development Consultants	0	0	0
Methods Development Consultants	0	0	0
Expert Travel & Meeting Costs	31,767	853	32,620
Translation & Publishing	0	567	567
Miscellaneous	31,767	0	31,767
	1\$US=0.57£GB	1\$US=5.2938FF	
<b>Total 1992:</b>	<b>136,411</b>	<b>155,843</b>	<b>292,254</b>
<b>1993</b>			
Staff	84,352	274,797	359,149
Staff Travel	14,562	34,614	49,176
Miscellaneous Consultants	0	0	0
Software Development Consultants	0	61,096	61,096
Methods Development Consultants	52,249	19,230	71,479
Expert Travel & Meeting Costs	0	17,187	17,187
Translation & Publishing	0	0	0
Miscellaneous	1,225	0	1,225
	1\$US=0.667£GB	1\$US=5.6632FF	
<b>Total 1993:</b>	<b>152,388</b>	<b>406,924</b>	<b>559,312</b>
<b>1994</b>			
Staff	56,684	244,857	301,541
Staff Travel**	5,186	21,332	26,518
Miscellaneous Consultants	0	0	0
Software Development Consultants	0	67,660	67,660
Methods Development Consultants	0	26,402	26,402
Expert Travel & Meeting Costs	0	0	0
Translation & Publishing*	93,322	192,953	286,275
Miscellaneous	0	2,465	2,465
	1\$US=0.666£GB	1\$US=5.719FF	
<b>Total 1994:</b>	<b>155,192</b>	<b>555,669</b>	<b>710,861</b>
<b>Phase I</b>			
<b>Total 1991-1994:</b>	<b>518,560</b>	<b>1,191,859</b>	<b>1,710,419</b>

\* US\$ amounts are converted from original currencies using the exchange rates noted in the table

\*\* These expenditures are estimated.

Table 6-Phase I Expenditures by Programme Element

	IPCC \$US	OECD \$US	Programme \$US
1991 - 1994 Phase I			
Data Collection, Review, & Evaluation	0	23,864	23,864
Software Development	0	209,047	209,047
Technical Development of Guidelines	52,249	309,139	361,388
Technical Co-operation	339,997	165,617	505,614
Editing, Translating, and Publication of Guidelines			
Technical Editing	46,661	27,091	73,752
Translation	46,661	206,524	253,185
Other Administrative Functions	32,992	250,576	283,568
<b>Totals:</b>	<b>518,560</b>	<b>1,191,858</b>	<b>1,710,418</b>

## NOTES ON TABLES

### Table 4

The income table lists all Programme income for *Phase I* work. Funds were received at the OECD Environment Directorate or at the IPCC WGI Technical Support Unit, in a variety of currencies. Those grants received at the OECD were converted to French Francs at the exchange rate at the time of conversion. Those received at the IPCC WGI Technical Support Unit were similarly converted to Pounds Sterling.

### Table 5

Some of the 1994 expenditures have not yet been effected. These figures are thus estimates and are marked as such.

Exchange rates used are annual averages for each of the three years 1991, 1992, and 1993, while 1994 is the average of January through July, 1994 exchange rates. These exchange rates are taken from OECD's *Monthly Statistics of Foreign Trade*.

### Table 6

This table also summarises expenditures, but disaggregated them by programme element.

INTERGOVERNMENTAL PANEL  
ON CLIMATE CHANGE

IPCC-XI/Doc. 10  
(17.XI.1995)

ELEVENTH SESSION  
Rome, 11-15 December 1995

ENGLISH ONLY

### LONG-TERM IPCC FUNDING

(Submitted by the Chairman of the Ad Hoc IPCC Financial Task Group (AIFTG))

It may be recalled that the topic was considered at IPCC-X. The IPCC Bureau at its ninth session recommended that the relevant document, namely, IPCC-X/Doc.7, be revised and submitted to IPCC-XI. This paper is an update of IPCC-X/Doc. 7 and takes into account the developments related to the UN Framework Convention on Climate Change, the Eighteenth session of the UNEP Governing Council, the Twelfth World Meteorological Congress and the comments of delegations made at IPCC-X and the ninth session of the Bureau. It is submitted to the Panel for discussion and possible decision.

## INTRODUCTION

1. There is broad agreement that funding for the Intergovernmental Panel on Climate Change (IPCC) beyond 1995 should be placed on a more regular and systematic basis. This is necessary for the IPCC to perform its work and meet the needs of the Parties to the U.N. Framework Convention on Climate Change (UNFCCC) for scientific and technical information and assessment.
2. In August 1993, the IPCC Bureau discussed alternative approaches to the question of long-term funding. In February 1994, the IPCC formed the Ad Hoc IPCC Financial Task Group. At its Tenth Session, the Panel considered the issue of long-term funding for the IPCC. Subsequently, the IPCC Bureau at *its* Ninth Session (Geneva, 18-19 September 1995) recommended that the issue be submitted to the Panel at the Eleventh Session for further consideration and possible decision.
3. This paper reviews the alternatives identified by the AIFTG and presents the Group's recommendations of options. In this connection, the Group notes that any consideration of the long-term funding of the IPCC should take into account the IPCC work programme after the completion of the Second Assessment Report as well as the Panel's future structure.
4. Governments require significant lead time to plan financial expenditures. For this reason, it is hoped that participants at IPCC-XI will reach substantial consensus on an approach to the IPCC long-term funding needs, thereby providing governments as much lead time as possible.

## BACKGROUND

5. When UNEP and WMO established the IPCC in 1988, they set up a Trust Fund to support the work of the Panel and encouraged participating governments to contribute.
6. UNEP and WMO<sup>1</sup> each contribute 125,000 Swiss francs (CHF) annually to the Trust Fund. In addition, the parent organizations provide substantial non-monetary support. For example, the salaries of the Secretary and the Senior Programme Officer are provided by WMO and UNEP respectively. WMO also provides office space in Geneva and waives any overhead charge for its administration of the Trust Fund.
7. Other contributions to the Trust Fund have come from participating governments. Those which have contributed to the Trust Fund since its inception include: Australia, Austria, Canada, China, Denmark, the Commission of the European Union, Finland, France, Germany, Greece, Italy, Japan, the Netherlands, Norway, Saudi Arabia, Spain, Sweden, Switzerland, the United Kingdom and the United States of America. The Rockefeller Foundation has also contributed to the Trust Fund.
8. At its Eighth Session in 1992, the IPCC agreed on a new structure. Under it, the Working Groups are now co-chaired by developed and developing country experts.

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<sup>1</sup> The Twelfth World Meteorological Congress increased the annual cash contribution of WMO to CHF 200,000 (from the current CHF 125,000) for 1996-1999.

In addition, Working Group II's four subgroups are now co-chaired by developed and developing country experts. In launching efforts to prepare the Second Assessment Report, each of the Working Groups also established a Technical Support Unit (TSU) to facilitate its work and assist the IPCC Secretariat with matters related to the Working Group. The total costs of maintaining these TSUs is estimated between \$2.5 to 3.0 million annually; in each case, the cost is borne by the host government (United Kingdom, the United States and Canada). Also in the context of the Second Assessment Report, many governments have provided travel and other support to their lead authors; these costs are not reflected in the IPCC budget, and in some cases they are considerable.

9. At its Ninth Session in 1993, the IPCC decided that each chapter of its Second Assessment Report would have at least one lead author from a developing country.

10. To prepare its 1994 Special Report (CLIMATE CHANGE 1994) and its Second Assessment report, the IPCC decided to sponsor a number of workshops and numerous meetings of lead authors and adopted rules of procedure, with specific requirements for peer and governmental review of IPCC outputs, and a workshop policy. The procedures were amended at the Tenth Session to accommodate the requirements of Working group I.

11. The IPCC considered that these structural and policy changes were essential to promote the full participation of the developing countries in the work of the IPCC, to accomplish the tasks envisioned for the 1994 Special Report and the Second Assessment Report, and to improve transparency of the IPCC process.

12. The IPCC has also been engaged in a joint effort with the OECD/IEA to develop a methodology for inventorying sources and sinks of greenhouse gases. This methodology work has been vital to the efforts of governments to meet their commitments under the UN Framework Convention on Climate Change (UNFCCC) and has been welcomed and applauded by governments by the Intergovernmental Negotiating Committee (INC) for a UNFCCC and by the Conference of the Parties to the UNFCCC.

13. These changes and activities have significantly increased the annual costs of the IPCC. A large portion of the IPCC's annual budget is devoted to facilitating the participation of the developing countries and countries with economies in transition, thereby promoting capacity-building in scientific and technical areas related to climate change within these countries.

14. When the United Nations General Assembly established the INC in 1990, governments were also asked to contribute to the two trust funds established by the General Assembly to support the participation of developing countries and economies in transition as well as to support the negotiating process. Partly as a consequence, contributions to the IPCC Trust Fund diminished.

15. For 1994 and 1995, the IPCC urgently sought additional funds from governments and international organizations to support its capacity building efforts, its methodology work, and to complete its 1994 Special Report and its Second Assessment Report. These funds were needed to meet the increased costs associated with the IPCC's structural and policy changes



and methodology work. They were above and beyond the level of annual contributions normally made by the governments. Recognizing the importance of the IPCC's work to the Framework Convention on Climate Change, the INC adopted a decision at its 9th Session in February 1994 endorsing the IPCC's fund raising efforts and lending its support.

16. In July 1994, the Council of the restructured Global Environment Facility approved a project submitted by UNEP on behalf of the IPCC that will provide US \$2.8 million -- the additional amount needed by the IPCC in 1994.

#### **ALTERNATIVE APPROACHES**

17. Recognition has grown, however, that the IPCC's future funding should be placed on a more regular and systematic basis if the IPCC is to meet the needs of the Parties to the Framework Convention on Climate Change for scientific and technical information and assessment. Toward this end, the IPCC Bureau discussed a number of alternative approaches to the Panel's long-term funding needs at its meetings in August 1993 and February 1994. These options, which were discussed at IPCC-X, include:

- (a) Full funding by UNEP and/or WMO
- (b) GEF funding
- (c) Funding by participating IPCC governments

18. Under Option (a), UNEP and/or WMO would be asked to assume full funding for the IPCC.

19. Under Option (b), the GEF would be asked to provide regular funding to the IPCC for its activities related to developing countries and economies in transition.

20. Under Option (c), participating IPCC governments would be asked to increase their annual contributions to the IPCC to meet its new funding needs.

21. The Task Group reviewed each of these options. It concluded that neither Option (a) nor Option (b) is readily available to meet the IPCC's long-term funding needs. The reasons are as follows:

#### **OPTION (A)**

22. UNEP and WMO provide significant resources to the IPCC. While these might be increased to some extent in the future, both organizations have had difficulty maintaining existing levels of funding in recent years. Neither organization is in a position individually or jointly to meet the IPCC's future funding needs from existing budgets<sup>2</sup>.

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<sup>2</sup> The Twelfth World Meteorological Congress did not adopt a proposal to bring IPCC activities under the WMO regular budget; the issue was not formally proposed to the UNEP Governing Council.

Even if increases could be obtained, the IPCC would need to compete for funds with existing programmes in each organization -- programmes which might have greater priority. Moreover, adopting this option would require a wholesale change in the basis upon which both organizations established the IPCC. In effect, the IPCC would cease to be an intergovernmental effort supported by UNEP and WMO; it would become instead a regular programme of either or both organizations.

#### **OPTION (B)**

23. In July 1994, the new GEF Council agreed to provide US \$2.8 million to the IPCC to fund its project for capacity building related to production of the 1994 Special Report and the Second Assessment Report. At the time, several governments expressed concern that the proposal seemed related to budgetary support. Although the GEF Council approved the project and acknowledged the important work of the IPCC, a number of governments questioned whether budgetary support is an appropriate use of GEF funds. While the GEF might be approached with similar projects in the future, it is uncertain whether they would be favorably received if they were viewed not as capacity building but as budgetary support. Moreover, any future GEF funding would need to relate specifically to developing countries and countries with economies in transition and thus could not provide the total annual funding needed by the IPCC.

#### **OPTION (C)**

24. Voluntary contributions by participating governments have been the primary source of funds for the IPCC since its inception. Although many have given generously, contributions have been uneven and have not kept up with the expanding work of the IPCC. The Task Group concluded, however that voluntary contributions by participating governments constitute the most realistic option to meet the IPCC's long-term funding needs. In this connection, the Task Group developed several recommendations which, if adopted by the IPCC Plenary, may place the issue of its long-term funding on more regular and systematic basis. These recommendations follow.

#### **RECOMMENDATIONS**

25. Efforts should be made to share the costs of the IPCC more broadly among participating governments. To this end:

- a. The IPCC should look to governments of developed countries to provide about 75% the Panel's annual budget.
- b. Such governments should be encouraged to provide minimum annual voluntary contributions in accordance with their prevailing percentage contributions to the regular budget of the United Nations.

- c. Governments of developed countries that have not made financial contributions to the work of the IPCC should be encouraged to do so; they should also be encouraged to provide minimum annual voluntary contributions in accordance with their prevailing percentage contributions to the regular budget of the United Nations.
- d. The IPCC should look to the following to provide the balance of about 25% of the Panel's annual budget:
  - i. Governments of developing countries and countries with economies in transition should be encouraged to participate in the work of the IPCC and to provide annual voluntary contributions, to the extent their circumstances permit; these contributions could be financial, in kind<sup>3</sup> or both.
  - ii. Governments of developed countries in a position to do so should be encouraged to make further annual voluntary contributions.
  - iii. Regional economic integration organizations should be encouraged to continue to make annual voluntary contributions.
  - iv. The IPCC should work with the Conference of the Parties (COP) under the Framework Convention Climate Change on annual contractual arrangements under which the COP would reimburse the IPCC for services rendered<sup>4</sup>.
  - v. International organizations, foundations and others should be encouraged to support the work of the IPCC that may be relevant to their ongoing programmes and activities.
- e. If, under the approach recommended here, contributions to the IPCC from all sources should exceed those needed in one year, any excess could be carried over to the following year, thereby reducing that year's budget. Alternatively, the excess could be credited to donors in the following year on a pro-rata basis, thereby reducing their contributions in that following year.

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<sup>3</sup> For example, the Governments of Argentina, Brazil, China, Republic of Korea, Russia and Zimbabwe have hosted IPCC meetings and workshops where they have provided significant assistance in the forms of within-country air travel, reduced airfares on national carriers, local staff support, conference facilities, partial interpretation and hospitality. In addition, some developing and transitional economy country governments have encouraged their scientists and other experts to serve as IPCC lead authors and reviewers, releasing them in part from other official duties to do so.

<sup>4</sup> For the biennium 1996-1997, the COP has made provision for up to \$ 310,000 annually in its budget for IPCC. The amount would depend on the contributions to the COP budget, its priorities and IPCC services.