

REPORT OF THE  
TWENTY-FIRST SESSION OF THE IPCC BUREAU  
Geneva, 11-12 December 2000

**1. OPENING OF THE SESSION**

1.1 The Chairman, Dr. Robert T. Watson, opened the session at 1000 hours on Monday, 11 December 2000 in Salle A of the WMO Headquarters Building in Geneva.

1.2 The agenda, as adopted, is attached in Appendix A.

**2. APPROVAL OF THE DRAFT REPORT OF THE TWENTIETH SESSION**

2.1 The draft was approved with the following amendments:

- a. In paragraph, 5.2.1, the words “in Japan” were deleted in line 4 and the acronym “LULUCF” inserted between “the” and “Report” in the same line.
- b. The paragraph 5.2.2 was deleted and the ensuing paragraph renumbered.
- c. In paragraph 7.1, the word “Bureau” was replaced by “African Group”.

**3. SYNTHESIS REPORT**

3.1 The Chairman reported that the Core Team, with selected Co-ordinating Lead/ Lead Authors from the Working Groups (i.e., Extended WGI Writing Team, Extended WGII Writing Team, Extended WGIII Writing Team respectively) had tabulated information relevant to the policy-relevant scientific/technical/socio-economic questions from the draft reports of the Working Groups, after the last round of Lead Author Meetings. The Core Team had then assembled the key messages on each of the questions.

3.2 The first 5 Questions remained unchanged and Question 6 and Question 7 had been combined into a single new Question 7. Questions 9 and 10 were renumbered as Questions 6 and 9. The co-ordination of the answers to the questions would be done by Drs. M. Munasinghe, M. Prather, H. Gitay, R. Scholes, D. Griggs, R. Richels, N. Leary, O. Canziani and T. Barker respectively.

3.3 Those members of the Bureau who are not on the Writing Team would be Review Editors. There would be three Review Editors per Question. Representatives of Governments of the members of the Bureau may be nominated to act as Review Editors where there are not a sufficient number of Bureau members to act as Review Editors. The task of the Review Editors would begin with attending the Third Meeting of the Core Team on 18-22 June 2001 in a place near Washington DC. They would receive the full draft Synthesis Report but would be responsible for specific Questions. They could act as reviewers either for those Questions for which they are not Review Editors or they should excuse themselves from review-editing their comments on the Question(s) for which they are Review Editors (see Annex A).

3.4 The Review Editors will attend the Core Team Meeting, which would precede IPCC-XVIII on 20 – 21 September 2001, and then it will be decided whether they need to stay on for the rest of the meeting.

3.5 A query was raised as to the representation of the African region in the Core Team. In response to that Dr. B. Metz was removed from the Core Writing Team to become a Review Editor and Prof. O. Davidson became member of the Core Writing Team.

3.6 The Bureau agreed that photographs would be introduced in the draft Synthesis Report. Further, the services of a professional graphics expert would be engaged, by the time the draft is circulated for the combined expert/government review, in making the graphics user-friendlier.

3.7 In the course of the discussion, the following points emerged:

- \* the entire draft Synthesis Report (the long part and the Summary for Policymakers) should be sent to the Review Editors but the responsibility for specific questions could be assigned to them,
- \* the entire draft Synthesis Report (the long part and the Summary for Policymakers) should be sent to the members of the Bureau,
- \* the author list should be included with the draft, and
- \* regional aspects have to be reflected in the Synthesis Report.

#### **4. TASK FORCE ON GREENHOUSE GAS INVENTORIES PROGRAMME, MATTERS ARISING FROM THE MEETINGS OF THE UNFCCC BODIES AND THE WORK PROGRAMME AND BUDGET FOR 2002-2004**

4.1 Since these topics were related, they were taken up together. The basic issues centre around:

- i. Should the IPCC embark on a full fourth assessment?
- ii. If yes to above, should the reports of the Working Groups be staggered or be concurrent?
- iii. Should the IPCC also engage in preparing Special Reports while undertaking the fourth assessment? Or, should the IPCC exclusively focus on Special Reports in the immediate post-TAR future?
- iv. Should TFI become a Working Group?

4.2 The following points emerged in the ensuing discussion:

- a. the Panel should maintain its independence, transparency, geographical balance and balance in viewpoints;
- b. current structure is functioning well; however, the issue of the TOR for the TFI is still outstanding;
- c. the Panel should strive to respond quickly to the requests of the UNFCCC – and other - bodies in the form of Special Reports etc. if, in its view, the subject-matter is amenable to technical-scientific analysis and funds allow; it should, however, at the same time plan and carry out own programme of work;
- d. full fourth assessment is needed with perhaps the Working Group reports staggered by 6-12 months to allow for co-ordination/ consistency checks; greater interaction with such programmes as the WCRP, IGBP, IHDP etc. would be helpful;
- e. top-down planning starting with the Synthesis Report (and the policy-relevant scientific/technical/socio-economic questions) would be a better approach to the fourth assessment; an integrated approach and regional/national/sectoral focus would be helpful;
- f. interlinkages among multilateral environmental conventions would need to be paid greater attention;
- g. more attention would need to be paid to adaptation and vulnerability issues including the development of further Guidelines;
- h. it is important to try for greater private sector expertise;
- i. participation by developing countries (e.g., on equity) needs to be enhanced;
- j. the perception of possible policy-advocating orientation should be addressed and such orientation avoided;
- k. with regard to outreach, the right recipients of information on the IPCC findings and conclusions would need to be identified; intergovernmental and non-governmental organizations, and the private sector could be of help here;
- l. the TFB would be reviewing the TOR proposals for the TFI in its next meeting.

4.3 A comment was made by the representative of the UNFCCC Secretariat that the bodies of the Convention on Biological Diversity (CBD) had called for co-operation between UNFCCC and the CBD entities. Some of the CBD requests probably fell more within the ambit of the IPCC.

## 5. FINANCIAL MATTERS

5.1 It may be recalled that the IPCC, in its Sixteenth Session (Montreal, 1-8 May 2001) had requested (see IPCC-XVI/Doc. 4, Rev. 1)

“...the IPCC Secretariat to prepare an analysis for consideration at IPCC-XVII of the reasons for the difference between the IPCC approved budget and expenditures in each year of the 1996-97 and 1998-99 biennia;

.... the IPCC Secretariat to compare the figure now used to estimate the cost of a “journey” with actual costs incurred for all journeys in the 1998-99 biennium that were paid from the IPCC Trust Fund, and to present its findings in this regard at IPCC-XVII;

... the IPCC Secretariat to seek the assistance of a budget expert from a government participating in the work of the IPCC or an independent financial consultant in analysing past budgets and expenditures, so as to provide a report to the Panel and to the Bureau at their next respective sessions and in preparing the IPCC’s annual proposed, forecast and indicative budgets;”.

5.2 In response to these requests, the IPCC Secretariat in turn requested the services of the Finance and Budget Division of the WMO in addressing them. The analyses and observations of the Division were presented to the Bureau in B-XXI/Doc. 3. The question of the actual costs of travel would require more time for clarification and it was hoped to produce the numbers in time for finalizing the budget proposals for IPCC-XVII (Nairobi, 4-6 April 2001).

5.3 A comment was made that the analyses were very useful and that they be completed.

## 6. PROGRESS IN THE PREPARATION OF THE THIRD ASSESSMENT REPORT (TAR)

6.1 All Working Groups: The draft reports of the three Working Groups had been circulated to governments in the final government distribution.

6.2 Working Group I: In response to a query on the upper end of the WG I temperature projection of 6°C for 2100, Dr. David Griggs stated that it was due to (a) sulphur emissions being less in the SRES than in the IS 92 scenarios, (b) greater NO<sub>x</sub> emissions in the SRES than in the IS 92 scenarios generating more tropospheric ozone, (c) model improvements in the form of carbon cycle feedbacks in the Simple Climate Models used and (d) cumulative carbon emissions being larger in the SRES than in the IS 92 scenarios.

6.3 Working Group II: With respect to the draft report of WG II, some new material (e.g., on ENSO in chapter 2) had been added. The governments would be informed in writing at the WG session of such additions.

6.4 Working Group III: The Working Group planned to hold its third regional workshop on integrated assessment modeling in the first half of 2001.

6.5. Assessment of Uncertainties and Other Cross-cutting Issues:

a. Working Groups I and II had modified, but in different ways, the Moss and Schneider recommendations for reporting uncertainties. Thus, while they were reporting the uncertainties, they had not done so in a uniform or comparable manner. Working Group III did not treat uncertainties in the same way as Working Group I and II. This posed difficulties in handling uncertainties in the Synthesis Report.

b. Working Group III found the guidance paper on costing methodologies helpful. The paper on Development, Sustainability and Equity was also helpful with the introductory chapters of Working Group III and in Working Group II. The one on Decision-Making Framework was the most

theoretical and was used only in one chapter of the WG III report. The guidance papers overall would probably be more helpful in the context of the synthesis.

c. Only limited cross-WG co-ordination on the guidance papers was possible due to lack of time. Also, the work on guidance papers commenced almost simultaneously with the preparation of the zero/first order drafts of the WG reports. In addition, at the time of Lead Author selection, specific nominations of experts in these disciplines were not made because none was requested. In the next phase of the IPCC work programme, it would be advisable to include consideration of the cross-cutting issues ab initio.

6.6 IPCC Task Group on Climate Scenarios for Impact Assessments: Criteria for GCM model runs of SRES scenarios had been agreed and available from the IPCC Data Distribution Centres (DDCs). Since 1998, results from 5 GCM runs were also available in the DDCs. One question was raised on the probabilities associated with SRES scenarios, as this was important to report uncertainties in some of the chapters of WG II. The Chairman remarked that the work of the group would be very helpful in the context of the IPCC's successful proposal for GEF-funding of capacity-building.

6.7 Ad-Hoc Group on Communication Strategy and Timing and Strategy for the release of the Reports of the Working Groups:

a. The Bureau agreed that the Summaries for Policymakers of the Reports of the Working Groups should be finalized within 12 to 24 hours after the closing of the Session of the respective Working Group. At that time, the respective SPM, as part of the WG Report, should be released to the media through a press event which should be planned to cover the developed, developing and transitional economy worlds. Video-press-conferencing should be explored in this regard. The press releases should be on the process with the respective SPMs cited verbatim. The work on the press releases should be initiated forthwith.

b. The SPMs and the Technical Summaries of all three Working Groups could be released, as part of the IPCC Third Assessment Report, at IPCC-XVII, at which time the media could be informed of the Synthesis Report.

c. It was planned to make the IPCC website interactive in the post-TAR period.

d. With respect to the publication of the TAR, timetables, number of pages, CD-ROM distribution and other details were being worked out.

e. Other agencies, particularly UNEP, could be approached for making simpler, targeted (to schools, industry etc.) publications from the TAR. Corporate or other funding could be sought to make television documentaries on IPCC findings and conclusions.

f. Various ministers (e.g., finance, energy, environment, water, transportation, industry, commerce), selected media sources, multinationals and other business houses should be targeted for the dissemination of the IPCC findings and conclusions.

g. The services, on a part time basis, of a professional expert on outreach should be sought.

h. Technical presentations of the TAR contents to SBSTA and COP sessions could be organized. National representatives attending IPCC/WG sessions could be assisted with material to brief the local press.

i. The Bureau was informed by Dr. T. Hiraishi, Co-Chairman of TFI, that, jointly with agencies such as UNITAR and UNDP, attempts were being made to produce training kits for use in disseminating the Report on Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. The role of the IPCC would be in providing technical support.

## **7. ISSUES REQUIRING BUREAU GUIDANCE**

Timing and strategy for the release of the Reports of Working Groups I, II and III; Scenario Evaluation Tool for use by policymakers (Working Group I); TAR Glossar(y)(ies) and Indexes; NGGIP

7.1 Much of the discussion on the timing and strategy of the release of the Reports of Working Groups I, II and III had taken place under the item reported in paragraph 6.7. The Bureau agreed that the possibility of purchasing 2000 copies of each of the Reports of the Working Groups be explored and the burden be shared between the IPCC Secretariat and the Technical Support Units. Volume 4 of the TAR would be translated into German by Austria, Germany and Switzerland.

7.2 The Scenario Evaluation Tool was already available and the publication containing it might need to be updated.

7.3 All Working Groups would have indexes in their Reports. Switzerland offered to lend a person to assist.

7.4 The question of developing a good practice guidance report under the NGGIP with respect to LULUCF issues was raised. The Bureau agreed that an informal consultative meeting be held in February/March 2001 to be followed by a planning meeting after COP-6 bis in July/August 2001. Then the task TOR could be developed for agreement by the Panel at its Eighteenth Session with the completion of the guidance report aimed for COP-8.

## **8. OTHER BUSINESS**

Proposal to the GEF for capacity-building

8.1 The Chairman informed the Bureau that a proposal for capacity-building in terms of research into impact studies in the developing countries had been funded by the GEF in the amount of \$7.5 million over a four-year period.

## **9. TIME AND PLACE OF THE NEXT SESSION**

9.1 The Bureau decided to meet in its Twenty-second Session in Nairobi on 3 April 2001 prior to the Seventeenth Session of the Panel.

## **10. CLOSING OF THE SESSION**

10.1 The session closed at 1705 hours on Tuesday, 12 December 2000.

**The following abbreviations are normally used in current IPCC documents:**

4-R	Fourth Assessment Report
CLA	Co-ordinating Lead Author
COP	Conference of the Parties to the UNFCCC
DC	Developing Country
EIT	Country with Economy in Transition
F&B Division	Finance and Budget Division of the WMO
GEF	Global Environment Facility
ICS	International Council of Science (formerly ICSU)
ICSU	International Council of Scientific Unions
IGBP	International Geosphere-Biosphere Programme of ICS
IHDP	International Human Dimensions Programme of ICS
IOC	Intergovernmental Oceanographic Commission of UNESCO
LA	Lead Author
LULUCF	Land Use, Land Use Change and Forestry
NGGIP	National Greenhouse Gas Inventories Programme of the IPCC
RE	Review Editor
SAR	Second Assessment Report
SBI	Subsidiary Body for Implementation of the COP
SBSTA	Subsidiary Body for Scientific and Technological Advice of the COP
SFR	Swiss Franc
SPM	Summary for Policymakers
SR	Special Report of the IPCC
TAR	Third Assessment Report
TBD	To Be Determined
TF	Task Force of the IPCC
TFB	Interim Bureau of the TFI
TFI	Task Force for NGGIP
TGCIA	Task Group on Climate Scenarios for Impact Assessments of the IPCC
TOR	Terms of Reference
TS	Technical Summary
UN	United Nations Organization
UNEP	United Nations Environment Programme
UNESCO	UN Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
WCRP	World Climate Research Programme (WMO/IOC/ICS)
WG	Working Group of the IPCC
WMO	World Meteorological Organization

## APPENDIX A

IPCC BUREAU  
Twenty-First Session  
Geneva, 11 – 12 December 2000

B-XXI/Doc.1, Rev. 1  
20.X.2000  
ENGLISH ONLY

### PROVISIONAL ANNOTATED AGENDA

Registration will begin at 0900 hours on Monday, 11 December 2000 in front of the meeting room on the ground floor of the WMO Headquarters building at 7 bis, Avenue de la Paix, Geneva.

There will be a cocktail reception for all attendees at 1800 hours in the WMO Cafeteria on the top floor (floor A for Attique) on 11 December 2000.

#### 1. OPENING OF THE SESSION (B-XXI/Doc.1)

The Chairman of the IPCC, Dr. Robert T. Watson, will open the session at 1000 hours. The provisional agenda will be submitted for approval. It may be amended at any time during the session.

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

It is suggested that the working hours be from 1000 to 1300 hours for the morning meetings and from 1500 to 1800 hours for the afternoon meetings with appropriate breaks.

#### 2. APPROVAL OF THE DRAFT REPORT OF THE TWENTIETH SESSION OF THE BUREAU (B-XXI/Doc.2)

#### 3. SYNTHESIS REPORT

The Chairman will inform the Bureau of the progress in the preparation of the draft Synthesis Report. He will open for discussion (a) Review Editor assignments to those Bureau members who are not in the writing team and (b) co-option of external experts as Review Editors. The discussion may include the question of the timing of the release of the completed Synthesis Report and the associated press activities (vide items 8.7 and 9.1 below also).

#### 4. TASK FORCE ON NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME (TFI)

Mr. Taka Hiraishi and Dr. Buruhani Nyenzi, the Co-Chairmen of the TFI, will brief the Bureau on the Task Force Terms of Reference.

#### 5. FINANCIAL MATTERS

The Chairman of the Financial Task Team (FiTT) will brief the Bureau on the progress made in responding to requests contained in the Decision on the IPCC Work Programme and Budget (IPCC-XVI/Doc. 4, Rev. 1).

#### 6. MATTERS ARISING FROM THE MEETINGS OF UNFCCC BODIES

The Chairman will initiate discussion on matters relevant to IPCC arising from COP-6 and the earlier Sessions of SBSTA and SBI.

## 7. WORK PROGRAMME AND BUDGET FOR 2002-2004

The Secretary will present the preliminary estimates for discussion and guidance by the Bureau.

The Chairman will initiate discussion on the post-TAR direction for the IPCC. The guiding thought here is that the IPCC, at its Seventeenth Session (Nairobi, 4-6 April 2001) would decide on the future direction of its work programme and structure so that the election of the fourth Bureau could take place in 2002. The decision may include the continuance of the Task Force on National Greenhouse Gas Inventories or its replacement by a Working Group on, perhaps, Methodologies.

## 8. PROGRESS IN THE PREPARATION OF THE THIRD ASSESSMENT REPORT (TAR)

### 8.1 Working Group I: Sir John Houghton and Prof. Ding Yihui, Co-chairmen

#### 8.2 Working Group II: Prof. James McCarthy and Dr. Osvaldo Canziani, Co-chairmen

#### 8.3 Working Group III: Dr. Bert Metz and Prof. Ogunlade Davidson, Co-chairmen IPCC National Greenhouse Gas Inventories Programme: Drs. Taka Hiraiishi and Buruhani Nyenzi. The item may include the question of methodological issues related to land use, land use change and forestry

#### 8.4 Assessment of Uncertainties: Co-chairmen of the Working Groups

#### 8.5 Other Cross-cutting Issues: Prof. Tomihiro Taniguchi and Dr. Rajendra K. Pachauri, Vice-chairmen of the IPCC

#### 8.6 IPCC Task Group on Climate Scenarios for Impact Assessments: Sir John Houghton, Prof. Ding Yihui, Co-chairmen of Working Group I and Prof. James McCarthy and Dr. Osvaldo Canziani, Co-chairmen of Working Group II

#### 8.7 Ad-Hoc Group on Communication Strategy: Dr. R.K. Pachauri, Chairman. The item may include a discussion of IPCC outreach efforts

## 9. ISSUES REQUIRING BUREAU GUIDANCE

### 9.1 Timing and Strategy for the release of the Reports of Working Groups I, II and III

Formally, approval/acceptance actions of the Working Groups need to be accepted by the IPCC before the Reports of the Working Groups become IPCC products. The Panel is scheduled to meet in its Seventeenth Session in Nairobi on 4-6 April 2001, about a month after Working Group III would be completing its actions on 28 February – 3 March 2001. Working Groups I and II would be completing their actions on 17-20 January 2001 and 13-16 February 2001 respectively. The Bureau may wish to discuss the question of the timing of the release of the 3 Working Group Reports and the arrangements for doing so. It may also wish to address the question of press releases and their timing and wording.

### 9.2 Scenario Evaluation Tool for use by policymakers (Working Group I)

### 9.3 TAR Glossar(y)(ies) and Indexes

The Bureau may wish to discuss appending a single, unified glossary comprising the glossaries in the volume of the TAR comprising the Synthesis Report and the 3 Summaries for Policymakers and the 3 Technical Summaries.

## 10. OTHER BUSINESS

## 11. TIME AND PLACE OF THE NEXT SESSION



12. CLOSING OF THE SESSION

The session is expected to close at 1800 hours on Tuesday, 12 December 2000.

## ASSIGNMENTS OF REVIEW EDITORS

### Question 1

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

Meira Filho

Metz

Carruthers

### Question 2

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

Ding

Izrael

Abdallah

### Question 3

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

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

Zillmann

Ndiaye

### Question 4

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

Nyenzi

Odingo

Mccarthy

### Question 5

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

To the extent possible evaluate the:

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

- development, sustainability and equity issues associated with impacts and adaptation at a regional and global level.

Joos  
Petit  
Romero

### **Question 6** (old Questions 6 and 7)

- (a) How does the extent and timing of the introduction of a range of emissions reduction actions determine and affect the rate, magnitude and impacts of climate change, and affect the global and regional economy, taking into account the historical and current emissions?
- (b) What is known from sensitivity studies about regional and global climatic, environmental and socio-economic consequences of stabilizing the atmospheric concentrations of greenhouse gases (in carbon dioxide equivalents), at a range of levels from today's to double that level or more, taking into account to the extent possible the effects of aerosols? For each stabilization scenario, including different pathways to stabilization, evaluate the range of costs and benefits, relative to the range of scenarios considered in question 5, in terms of:
- projected changes in atmospheric concentrations, climate and sea level, including changes beyond 100 years;
  - impacts and economic costs and benefits of changes in climate and atmospheric composition on human health, diversity and productivity of ecological systems, and socio-economic sectors (particularly agriculture and water);
  - the range of options for adaptation, including the costs, benefits and challenges;
  - the range of technologies, policies and practices that could be used to achieve each of the stabilization levels, with an evaluation of the national and global costs and benefits, and an assessment of how these costs and benefits would compare, either qualitatively or quantitatively, to the avoided environmental harm that would be achieved by the emissions reductions;
  - development, sustainability and equity issues associated with impacts, adaptation and mitigation at a regional and global level.

Stone  
Manning

### **Question 7** (old Question 9)

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

- What would be the economic and social costs and benefits, and equity implications of options for policies and measures, and the mechanisms of the Kyoto Protocol, that might be considered to address climate change regionally and globally?
- What portfolios of options of research and development, investments, and other policies might be considered that would be most effective to enhance the development and deployment of technologies that address climate change?
- What kind of economic and other policy options might be considered to remove existing and potential barriers and to stimulate private-and public-sector technology transfer and deployment among countries, and what effect might these have on projected emissions?
- How does the timing of the options contained in a, b and c affect associated economic costs and benefits, and the atmospheric concentrations of greenhouse gases over the next century and beyond?

Lorentsen  
Jochem  
Sutamihardja  
Miotke

### **Question 8**

What is known about the interactions between projected human-induced changes in climate and other environmental issues, e.g., urban air pollution, regional acid deposition, loss of

biological diversity, stratospheric ozone depletion, and desertification and land degradation? What is known about the environmental, social and economic costs and benefits and implications of these interactions for integrating climate change response strategies in an equitable manner into broad sustainable development strategies at the local, regional and global levels?

Madruga

Ramirez

Meyer

**Question 9** (old Question 10)

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

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

Pretel

Calvo

Warrilow