



WMO

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



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A PROPOSAL FOR THE SYNTHESIS REPORT (SYR) FOR THE AR4

(Submitted by the Chairman)

A proposal for the Synthesis Report (SyR) for the AR4

1. Preamble

- 1.1 In conjunction with its Third Assessment Report (TAR) the IPCC prepared a Synthesis Report (SyR) that addressed key policy questions, which had been formulated in cooperation with the UN FCCC. The IPCC's responses to these policy questions were prepared in such a way as not to be policy prescriptive.
- 1.2 The general assessment and common perception is that overall the TAR SyR was well regarded as an important product of the IPCC. While the scientific community, at times, found challenges in formulating answers to the complex questions posed in the SyR, it is apparent that the great majority of interested policy makers were appreciative of the efforts made by the Panel, and of the results that were achieved.
- 1.3 At its 18th Session (Wembley, UK, 24-29 September 2001) the Panel decided that a Fourth Assessment should be prepared but was silent on the need for an SyR. At its 19th Session (Geneva, Switzerland, 17-20 April 2002) the Panel decided (Decision 6), *inter alia*, that:
 1.;
 2. Working Group reports and, if it is decided to prepare one, the Synthesis Report, would be sequenced such that the Working Group I report would be finalised during the first quarter of 2007, Working Group II and Working Group III reports in mid-2007 and the Synthesis Report during the last quarter of 2007;
 3.
 4. The scope and nature of the Synthesis Report will be approved by the Panel at its next session.
- 1.4 At the 20th Session of the Panel (Paris, France, 19-21 February 2003) there was no Agenda Item that called for a discussion of the type and scope of SyR that might be prepared as a part of the Fourth Assessment Report (AR4). Rather, as a part of the overall discussion on "Item 5 – Preparations for the Fourth Assessment" the Panel decided (Decision 3), *inter alia*, that:
 - (1) That there should be two scoping meetings before the 21st Session of the Panel. These scoping meetings would develop for submission to the 21st Panel:
 - (a);
 - (b); and,
 - (c) A proposal for the AR 4 Synthesis Report, which would address whether there is to be a Synthesis Report, and if so, its structure and the work plan for its preparation.
 - (2)
- 1.5 Informal discussions with the IPCC community at large and at the First and Second Scoping Meetings held at Marrakech and Potsdam respectively reveal a large measure of support in favour of an SyR being produced on the basis of the evolving content of the WG reports of the AR4.
- 1.6 While commenting on the issue of the next SyR, a number of scientists and governments have informally suggested that the questions be simplified and while being cross-cutting in nature, should aim for better integration of science/policy issues.
- 1.7 The remainder of this document sets out views on the need for a SyR and on the nature and scope of such a SyR for the AR4.

2. Do we need an SyR?

- 2.1 This question can best be answered on the basis of two criteria. The first relates to the experience of the last SyR and its overall utility as an IPCC product. The second would be based on some perception of the future demand for such a product and its potential for meeting projected requirements in the coming five to six years. Within this framework it can be stated that:
- 2.1.1 The last SyR has proved to be an extremely valuable document. It is by far the one IPCC product that is the most widely referred to. There is no doubt need to refine the next SyR based on the experience gained with the previous one, but its utility in the past has been highlighted by its users not only among policymakers and decisionmakers in business and industry, but also by academics and researchers, NGOs, students and teachers as well as the public at large.
- 2.1.2 The demand for the SyR is expected to grow substantially during the current cycle of production of the AR4. This is based on the fact that awareness about and interest in climate change is increasing rapidly among all sections of society. While the research community would continue with intensive use of the WG reports, other stakeholders are expected to seek a comprehensive picture of all aspects of climate change available in a single document. Even the research community that is not directly engaged in work on climate change but has some related interest in the subject would prefer a “single window” source of comprehensive assessment. This projected demand would be enhanced if the IPCC were to produce a SyR which is more reader friendly, more presentable in style and content and more cross-cutting in nature as proposed in this document.
- 2.2 It can be concluded, therefore, that there is a clear demand for a SyR for the AR4, and that its production would be an extremely worthwhile and valuable undertaking.

3. Key issues for guiding the next SyR

- 3.1 It is important to consider the eventual perspective of the IPCC AR4 Synthesis Report as a source of scientific and technical knowledge with emphasis on key issues. The primary audience, when designing the structure and contents of the SyR, should be the decision-making community and its needs for knowledge regarding climate change and related issues. The SyR would also have considerable value for the scientific community. If we accept this orientation, then we must understand the context in which people would read the next SyR. These contextual aspects need to be highlighted; as reflected in the following paragraphs.
- 3.2 At the time of release of the AR4 the global negotiating community is expected to be engaged actively in the process of negotiations for the next steps under the UNFCCC. Negotiators in particular, and the public at large would look for insights and scientific assessment that provide a basis for informed negotiations. This has to be kept in mind in the design and development of the SyR, without compromising on objectivity and scientific rigour.
- 3.3 The general awareness of the decision-making community would most likely be at a much higher level by the time of the release of the next SyR than was the case when the previous product was published. Expectations, therefore, would be for substantially new knowledge and much more pointed information in the next SyR. In some sense, therefore, the IPCC would be challenged by its own success in the past.
- 3.4 The most important issue that needs to guide the preparation of the next SyR is the importance of ensuring that the contents are based on solid science. The team that works on the SyR should ensure that the material is not policy prescriptive but policy relevant. While the very purpose of the SyR is to ensure its relevance to policymakers, it is equally important that nothing even mildly suggestive of prescriptive answers should find place in it. Therefore the AR4 SyR must present the conclusions of its assessment in a well structured, easily understandable form, written in clear, direct and precise

language, thus enabling a balanced, equally valid and concurrent meaning when translated into the UN official languages.

- 3.5 The output of the IPCC in the form of the SyR should aim to fill up as comprehensively as possible a clear perceived need in an objective manner such that it minimizes biased interpretation of any of the contents of the AR4.

4. A review of the structure of the previous SyR and perspectives on the next

- 4.1 Several comments and suggestions received from governments (Appendix A), as well as others, point out that the next SyR should improve on the earlier product presented with the TAR. This would require that we design the process and the schedule for production of the SyR in such a way as to address what we perceive as deficiencies and imbalances in the TAR SyR. In doing so, we must keep in mind the desired structure, shape and size of the AR4 SyR.
- 4.2 There are really three approaches to structuring the next SyR. The first is the approach followed for the TAR document, which was based on questions and answers. The second approach is that of addressing specific themes, which would focus on a set of specific topics to be dealt with comprehensively by using information and assessments provided in each of the Working Group reports. The third option is the combined approach of a specific themes and relevant questions. One view point suggests that the combination of specific themes and simple formulation of question and answer format could be most effective in transmitting key messages from the AR4 to decision-makers, whereas themes run the risk of becoming unfocussed and long treatises. The cross cutting issues can also be formulated in the question format, which would allow the provision of a concise and focussed answer. However at this stage, perhaps it would be useful to leave open the question of, which of the three approaches should be preferred for the AR4 SyR. In any case, the guidance provided at the First Scoping Meeting (Marrakech, April 2003) by the participating experts has been further analyzed at the Second Scoping Meeting (Potsdam, September 2003), aiming at a sharper focus on those issues whose implications have a definitive bearing on the objectives of the UNFCCC and of other programmes and directions set by existing multilateral environmental agreements.
- 4.3 The TAR SyR consisted of nine questions and answers of highly variable length. One comment voiced by several parties relates to the cumbersome nature and somewhat inelegant composition of the questions framed in that report. The break up of the number of words for each question in the TAR SyR is mentioned in Appendix B (i).
- 4.4 In case the decision is to follow the same question-answer format as in the TAR, then it would be highly desirable to frame the AR4 SyR questions in a manner such that they are brief, to the point, but comprehensive. It may not be desirable to have several sub-classifications for each question, because that may constrain the framing of the answers in a way that doesn't necessarily bring out the substance and coherence of the material available in the Working Group reports. Also, the sub-questions could carry the hint of defining answers whose direction and content appear pre-determined. Ideally, all the questions should have a uniform length between 25 to 75 words.
- 4.5 A study of the questions used in the last SyR shows considerable unevenness in quality, precision and composition defining each question with overlap in content across all the nine questions. For instance, question 2 is framed extremely well; question 5 is also formulated very well. Question 6 is much too long and complicated, as also question 7 and 8 (to a lesser extent). Question 9 could also have been compressed significantly. The main part of question 3 is formulated well, but the elaboration presented below it could have been done very differently. Many of the TAR SyR questions were single WG questions, where answers were found directly in one of the WG SPM's. However, with the detailed treatment of CCTs in the AR4 there will arise multi WG issues for which a synthesis answer has to be written.

- 4.6 It would be desirable, in the AR4 SyR to provide some degree of consistency in the length of the answers. If the question-answer approach is followed, a range not going beyond 7 to 13 pages each would be desirable for creating a balance in the material presented and for keeping the overall length of the SyR within an appropriate limit.
- 4.7 The Working Group summaries and their break up were certainly more uniform than the main body of the SyR. The number of pages covered by the Summary for Policymakers was 15 in the case of Working Groups I and II and 11 pages for Working Group III. The Technical Summaries were respectively 51, 52 and 49 pages. Hence, these components of the Working Group outputs included in the SyR were essentially uniform in size, though not necessarily completely consistent in dealing with some cross cutting issues such as costing methodologies, issues of sustainable development, the assessment of risk and uncertainty and decision analysis frameworks. The reason for this was as the CCT issues had been chosen rather late, compounded by the lack of bibliographical references which led to creation of certain inadequacies. For instance, sustainable development and equity issues and treatment of uniform costing methodologies for impacts and hence for evaluating adaptation costs were dealt with inadequately.
- 4.8 The SPM length for TAR was set at 4000 words, as this is the length that can be managed in a 3-4 day meeting (figures and tables additional). It is suggested that a similar length for the AR4 SyR be maintained.
- 4.9 The AR4 SyR should use an adequate number of diagrams, illustrations, and graphs etc. The break up of these in the TAR SyR is shown in Appendix B (ii). It is important to provide illustrations representing the subjects covered in the SyR. This would ensure that not only would the SyR be able to meet the needs of the scientific and policy communities dealing with climate change, but that the material contained in the form of graphics and pictorial representation would be used by other organisations for popular materials that would have appeal for the public at large. Hence it would also be useful, in the AR4 SyR to produce as many of the diagrams and illustrations in colour as possible. This indeed was the case in the TAR SyR except with the tables that were presented. In any case, it would perhaps be desirable to reduce the number of tables, and try to substitute these with graphs, diagrams and illustrations. It must be kept in mind that a picture is worth a thousand words. An example of this can be seen in figure 4.2 in the previous SyR that shows a pictorial description of the great ocean conveyor belt. If the same material had to be presented in words, it would have taken substantially greater space and with a much weaker impact on the reader. Considering that the SyR will appear as a book including SPM and TS for each WG together with synthesis text, efforts should be started in producing figures and diagrams for the WG reports. The SyR then would appear to be an integrated version. There may also be a need for increasing the number of boxes, which could present specific issues, case studies and any specific analysis to supplement effectively the main text of the report.
- 4.10 The key point is that consideration of communication and outreach should be built into each step of the process of preparing the AR4. One means to ensure that all these aspects are kept in mind right from the beginning of the effort to produce the next SyR would be to arrange a specialist with communications skills, providing inputs for the design and layout of the report.

5. Technical content of the next SyR

- 5.1 If the SyR is to carry a useful message embodying all aspects of the science of climate change, then we would have to structure the questions or themes in a manner that relates them to the body of knowledge, which is most policy relevant in the context described earlier. It is also suggested that the focus of the SyR should be on integrated questions relevant to policy makers, which are reflected in most of the CCTs and to limit single WG issues that are already in the WG SPM's. If we were to look at the policy relevant messages that must be included in the SyR, drawn from outputs from the Working Groups then we should perhaps consider the following:
- 5.2 **Working Group I** – The reader must understand the nature and extent of climate change as it has taken place in the past, the relationship between past human actions and changes that have taken

place as well as projections of changes into the future. Of great importance in this context would be a simple outline of the changes taking place and the science underlying these changes, with a description of the uncertainty associated with the assessments presented.

- 5.3 **Working Group II** – Impacts of climate change will need to be defined in biophysical terms, their socio-economic implications, and a clear highlighting of those impacts that are irreversible, discontinuous and have serious impacts on ecosystems and human activities. This SyR should explain the link between climate change and the human dimensions of impacts produced particularly the socio-economic implications of climate change and multiple stresses, and adaptation options.
- 5.4 **Working Group III** – Mitigation options will need to be seen within a larger growth and development context and in terms of their actual feasibility, associated costs and co-benefits. Some gradation of what is feasible in the short term versus what might become feasible in the longer term would help to assess priorities and options in proper perspective.
- 5.5 What is provided above is only in the nature of some issues and areas of emphasis that need consideration, but further details are spelt out in subsequent sections.

6. The SyR Foci: the topics to be covered

- 6.1 The purpose of the SyR will be to bring together, in a single user-friendly document, the most significant findings from the AR4 assessment process which synthesise and add value to the individual Working Group Reports, which the IPCC expects to be of great interest for policymakers. It will thus include:
- The most important individual findings from each of the Working Group Reports;
 - Summary answers to the most important policy relevant questions that require input from more than one Working Group;
 - The most significant new findings in response to questions posed in the TAR SyR;
 - An explanation of how the AR4 assesses the new insights into the scientific – aspects of addressing Article 2 of the UNFCCC; and
 - Identification of the most important unresolved issues and sources of uncertainty.
- 6.2 It is important that the overall framework for the SyR be put in place at an early stage to facilitate coordinated development of internally consistent conclusions and text for the various Working Group chapters and the SyR. It must, however, be left sufficiently flexible to ensure that the SyR reflects the key findings that will emerge as the AR4 assessment proceeds.
- 6.3 The SyR could, at least in part, be based on the cross cutting themes incorporated in the AR4 as well as some questions from the previous SyR, answers to which may have become stronger from additional knowledge created by the scientific community in the intervening years.
- 6.4 The most suitable option would be that the SyR be structured on the basis of about a dozen short, simple, well-formulated questions embodying specific themes, with the answers written as brief headline statements followed by more detailed discussion and elaborated, where possible, by simple self-explanatory graphics. For the purposes of the SyR approval/adoption process, as described in the IPCC procedures, the questions and headline statements would constitute the Summary for Policymakers. The more detailed responses (along with the provisionally approved questions and headline statements) would be submitted for adoption, on a section-by-section basis, as the longer report.
- 6.5 While the exact wording of the questions cannot be fixed at this stage, the Chairman's proposals for the working structure of the SyR, based on consultations with the Bureau may be summarized in terms of the following set of general topic headings and draft questions.
- 1) *Main findings of AR4.* What are the most robust and important findings of the AR4 Working Group reports? This would bring together, in very brief summary form, the 3 or 4 key

conclusions from each of the three individual Working Group Reports. All subsequent questions would relate to issues that involve the synthesis of information from two or more Working Group reports.

- 2) *Regional information.* What are the most significant region-specific findings of the AR4?
- 3) *Natural and human-induced change.* How well is it possible to quantify the relative roles of anthropogenic emissions of greenhouse gases included in the UNFCCC as well as aerosols and other influences on past and future climate change and impacts?
- 4) *Lessons from palaeoclimates.* What can palaeoclimate studies tell us about climate change and impacts on decadal to century timescales?
- 5) *Constraints on near-term human-induced change.* What can be said about the nature and impacts of climate change over the next 15-20 years as a result of emissions that have already occurred?
- 6) *Climate change to 2050, 2100 and beyond.* What is the range of possible future climate change and its impacts to 2050, 2100 and beyond under a plausible range of emission scenarios and allowing for inertia and lags in the climate system?
- 7) *Climate change and water.* How important is climate change for the future quantity and quality of available freshwater?
- 8) *Climate extremes and their impacts.* How is future climate change expected to lead to changes in the frequency, severity and impacts of extreme weather and climate events?
- 9) *Climate change and sustainable development.* How can climate issues, influences and information be better integrated into national, regional, and global strategies for addressing other environmental issues and implementing the goals of sustainable development for all countries? And how can sustainable development strategies assist in addressing climate change?
- 10) *Mitigation options.* What are the mitigation options available for early implementation and what are their costs and other social, economic and environmental characteristics inclusive of co-benefits?
- 11) *Integration of adaptation and mitigation.* What are the main considerations which will help guide the balance of climate change mitigation and adaptation strategies, including mitigative and adaptive capacity?
- 12) *Technology and climate change.* What is the role of technology¹ in national, regional, and global strategies for addressing climate change?
- 13) *Science in support of UNFCCC.* How do the findings of the AR4 change the scientific basis for addressing Article 2 of the UNFCCC including the determination of what constitutes "dangerous anthropogenic interference with the climate system"?
- 14) *Uncertain and unresolved issues.* What are the key gaps in information and understanding and the main areas of emerging scientific investigation?

7. How should the SyR be prepared?

¹ The broadset of processes covering know-how, experience, and equipment used by humans to produce service as and transform resources.

7.1 Concerning the work plan and schedule for preparing an AR4 Synthesis Report the following sets of options are presented for consideration by the Panel. For each of these options the associated time lines have been identified and other implications evaluated particularly in respect of the requirement of expert capacity to undertake the work involved.

7.2 **Timing of decisions regarding the SyR, and implications of this timing**

With the inclusion of clearly specified cross-cutting themes in the AR4 and approval of the structures of the WG reports, there is adequate information available for deciding the contents of the SyR. Hence, an informed early decision on the production of the SyR would facilitate planning and execution of this task and contribute significantly to the quality of the next SyR. The timing of relevant decisions will have implications for the possible scope and content of the final report and expertise and resources available to write it.

- **Option 1: The Panel agrees at its 21st session on scope, nature and content of the AR4 Synthesis report**

The content of the AR4 SyR would be as described under item 6.5 above.

- **Option 2: The Panel agrees in principle at its 21st session to prepare a SyR**

The SyR would in general address the points mentioned under item 6.1. The final structure and content of the SyR would be approved by the Panel at its 22nd session, following recommendations by a combined expert/Bureau meeting and input from the first round of LA meetings of the 3 Working Groups.

- **Option 3** The Panel delays a decision about the SyR until 2005 or early 2006.

- **Option 4:** The Panel decides at its 21st session not to produce an SyR.

7.3 ***Impact of timing on likely nature and scope of SyR:***

In the case of options 1 and 2 governments would be requested to nominate LAs and CLAs for the 3 Working Groups, and to specifically include in those nominations authors who could usefully contribute to questions or themes, which the SyR will address. Both options would ensure that authors for the SyR can be designated early from among the Working Group LAs and CLAs, that individual Working Group reports provide sufficient and relevant information for the SyR, and that there is sufficient writing and review time to synthesize and integrate relevant and substantial information on cross-cutting matters and other questions that will be addressed in the SyR. For both options actual writing of the SyR could start after the second order drafts of the Working Group contributions have been sent for expert/government review (late 2005 early 2006). Extended writing team meetings could be held at the occasion of the fourth CLA/LA meetings of the Working Groups in mid 2006. Expert/government review of the draft SyR would take place in the first half of 2007 and adoption/approval in early October 2007.

Option 3 would mean that the SyR would primarily cut-and-paste key findings of the 3 Working Group reports, as time required to prepare a synthesis of information across several Working Groups in particular on cross cutting matters would be limited. The writing team would be composed by the IPCC Chair from among AR4 CLAs/LAs and members of the IPCC Bureau. The writing process will in that case have to be completed within a shorter time period and will leave less time for interaction with authors from the respective Working Groups.

**Suggestions on the SyR provided by governments prior to the first scoping meeting
(Marrakech 14-16 April, 2003)**

Comments relating to, *inter alia*, the AR4 SyR were received from governments before the first scoping meeting held in Marrakech. There were some common points made by several governments, dealing broadly with:

- (a) Q&A format: Simplified policy related questions should be posed with relevant information provided in brief in AR4-SyR
- (b) Incorporate a cross-cutting perspective, focussing on Article 2.
- (c) Better integration of various scientific and policy issues

Other specific suggestions made by governments were as follows:

- **Argentina:**
 1. Format to be compatible with concepts expressed in AR4
 2. Avoid biased interpretations from interest groups.
- **Finland:** The content should be carefully planned in an open process addressing climate change within the wider framework of sustainable development.
- **Germany:** To define the questions to be asked for SyR early in order to foster better linkages between WGs from the beginning.
- **Italy:**
 1. To include policy relevant information for the stakeholders and the SyR should be brief, more concise and more approachable by non-specialist readers.
 2. Follow a thematic approach and be more effective by including relevant material from the report.
 3. Simpler and better-formulated questions reflecting the needs of the Article 2 of the convention.
- **Netherlands:**
 1. Policy relevant scientific themes as structural elements - rephrasing questions asked in TAR-SyR into themes for the AR4-SyR.
 2. CCTS treated as structural elements and therefore extension with key issues within the scope of one WG is needed.
 3. Scientific, technical and socio-economic information relevant to article 2 of the UNFCCC as a starting point.
- **Sweden:** Have cross-cutting perspective focusing on Article 2.
- **United Kingdom:**
 1. Introduction, including discussion of Article II theme of the SyR.
 2. Synthesis of the policy relevant information in the three reports under the theme.
 3. Chapters on each CCT (or sub-themes to Art II theme), drawing together the information from each WG report.
 4. Q&A format to be retained but simplified and all relevant material included in the report for ready reference.
 5. Summary of important topics not covered in previous section (few).
 - SyR not to be limited by any proposed guidance from IPCC, instead authors should suggest the inclusion of other important topic.
 - For increased consistency SyR should be written in parallel with the AR4.
- **Uzbekistan:** Alternative approach to a question /answer format in AR4-SyR according to topics or CCTs.
- **Canada:** The "Nine Policy Question" provided an innovative approach to strengthening the science-policy interface. However more thought is required for better integration of various issues.

The break up of the number of words for each question in the TAR SyR

Question No.	Total no. of words
1	34
2	96
3	106
4	119
5	26
6	258
7	160
8	104
9	<u>55</u>
Total	958

Maximum no. of words =	258
Minimum no. of words =	26
Average =	106

(ii)

THE DETAILS OF BREAK UP DIAGRAM, TABLES, GRAPHS AND BOXES

	Diagrams (incl. flow charts)	Illustrations	Tables	Graphs	Boxes
Total	9	33	50	73	16

BREAK UP (Black & White and Coloured)

Black & White	1	3	28	9	-
Coloured	8	30	22	64	16

BREAK UP (page wise)

Full page	2	15	14	10	-
Half page or less than half	7	18	28	62	14
More than one page			8	1	
More than half page					2