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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE

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Item 3 of the provisional agenda

**COOPERATION WITH THE INTERGOVERNMENTAL  
PANEL ON CLIMATE CHANGE**

**Long-term emissions profiles**

**Comments from Parties**

**Note by the secretariat**

The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its fourth session, invited Parties to submit their views, by 15 January 1997, on the implications of different emission limitation proposals in terms of projected increases in global mean temperatures, sea-level rise and other changes in climate (FCCC/SBSTA/1996/20, para. 26).

The secretariat has received seven such submissions from Parties. In accordance with the procedures for miscellaneous documents, these submissions \*are attached and reproduced in the language in which they were received without formal editing. Any further submissions from Parties will be issued in an addendum to the present document.

**FCCC/SBSTA/1997/MISC.2**

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\* In order to make these submissions available on electronic systems, including the World Wide Web, these contributions have been electronically scanned and/or retyped. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

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**Submission from Canada**  
**Long-term Greenhouse Gas Emission Profiles**

**Introduction:**

As a signatory to the UNFCCC, Canada is committed to the ultimate UNFCCC objective of avoiding dangerous human interference with the global climate system. Canada also believes that actions to achieve this objective should recognize that the pursuit of sustainable economic development is the appropriate context for adopting measures to address climate change. Canada also accepts the responsibility of developed countries under Article 3.1 of the UNFCCC to take the lead in combating climate change and its adverse effects. However, Canada also believes that, to achieve an effective and equitable response to the risks of climate change, such response must be based on sound science and carefully designed strategies that ultimately involve all Parties to the Convention.

Canada believes there is a need to improve understanding of to what extent a range of emissions profiles would address the convention objective. Such analysis should also consider the risks of both absolute changes and the rate of changes in atmospheric greenhouse gases, and hence of global and regional climates. Given this context, Canada believes it is useful to examine a range of possible greenhouse gas emissions profiles to examine the overall sensitivity of the global climate system, and hence the welfare of human society, to these different profiles. Canada also believes it important to improve understanding of the potential economic implications of a range of possible emissions profiles, and suggests the IPCC work on economic implications consider the profiles that are being put forward.

Therefore, further to the conclusions of the fourth session of the SBSTA (FCCC/SBSTA/1996/20), Canada offers the following illustrative profiles for further work:

**Baseline Emission Scenarios**

Canada recognizes that the IS92 emission scenarios presented by the IPCC for UNFCCC consideration provide a very useful reference for assessing the implications of alternative action strategies. However, these scenarios need to be updated to reflect current knowledge, and need to be broadened to address some of the issues identified in the IPCC's 1994 Special Report on the Evaluation of the IPCC IS92 Emission Scenarios.

**Suggested Profiles for Annex I Action Strategies**

**Profile A.1.** Annex I Parties only stabilize emissions at 1990 level by 2005 (to reflect likelihood that year 2000 emission levels may be 5-10% above 1990 levels).

This profile reflects the initial aim under the UNFCCC. It is, however, noted that the Berlin Mandate recognizes that this emission profile will not achieve the objective of the UNFCCC, and hence is suggested primarily for comparison purposes.

Two variants of this option are suggested:

Option A.1a Annex I Parties stabilize emissions at 1990 levels by 2005 and remain stabilized at 1990 levels thereafter.

Option A.1b Annex I Parties continue efforts under initial aim (stabilize emissions at 1990 levels), but are not successful such that emissions continue to increase through 2005 and continue to increase thereafter.

**Profile A.2.** Annex I Parties initially stabilize emissions, then decrease emissions at a constant rate for an extended period of time. Non-Annex I Parties do not take deliberate action.

Two specific variants of this general option are suggested to assess the implications of delayed action (offset by more intensive and an extended period of action), as follows:

Option A.2a. Annex I Parties stabilize at 1990 levels by 2005, then reduce emissions by 0.5% / year to 2050 and stabilize at 2050 levels there after.

Option A.2b. Annex I parties delays additional action until 2020, then decrease emissions from 2020 levels at 1.0% / year through to 2050, and 0.5% / year from 2050 to 2100.

### **Suggested Profiles for all Parties**

**Profile B.1.** Annex I Parties undertake action as in Profile A.2a. Non-Annex I UNFCCC Parties with per capita GDP in excess of a specified threshold stabilize emissions at 2020 levels by 2030. All other Parties take no specified action until they reach the specified threshold.

**Profile B.2.** As in B.1, but Non-Annex I Parties with per capita GDP above the specified threshold reduce "business as usual" emissions growth by 50% per year from 2020 to 2050, and stabilize thereafter. Remainder of the Parties continue on a business as usual path (until threshold reached, after which above assumptions are followed).

**Submission from Kuwait**

**Comments on agenda item 3 (emission profiles) pursuant to the conclusions of the fourth session of the Subsidiary Body for Scientific and Technological Advice.**

1. Any IPCC analysis of the temperature sea level or other climate implications of proposed emissions limitations for of any other emission profiles or scenarios should be prepared only as an IPCC Special Report and should not be prepared as a Technical Paper.

The Conclusions of the fourth session of the Subsidiary Body for Scientific and Technological Advice (SBSTA) did not specify that the analysis should be undertaken as a Technical paper. Since the issue of whether the analysis should be prepared as a Special Report or as a Technical Paper was intensively debated at the session, but the Conclusions failed to request a Technical Paper, there is no justification to interpret the Conclusions as implying SBSTA's desire for a Technical Paper. The Conclusions merely requested the IPCC to complete the work "as soon as possible on the basis of these submissions in consultation with the Joint Working Group". The quoted phrase is entirely consistent with preparation of the analysis as a Special Report.

The principle procedural difference between a Special Report and a Technical Paper is that the Bureau of the IPCC possesses the final authority for approval of the content of a Technical Paper, whereas the IPCC participating governments exercise final approval (called "acceptance") of a Special Report. The sole justification for granting the IPCC Bureau such authority over Technical Papers is that Technical Papers are to be based on the material already in existing IPCC reports, such as the Second Assessment Report. However, the analysis in question will be based on new material that has not been contained in any existing IPCC report, *i.e.* analysis of the temperature, sea level and other climatic implications of alternative emission profiles or scenarios that never have been constructed or analyzed by the IPCC before now. Thus, the subject matter of the analysis in question is exactly the type of material that was agreed by IPCC-XII (Rome, December 1995) that would not be appropriate for a Technical Paper.

Construction of the new emissions profiles or scenarios that will be analyzed will involve many controversial assumptions. These will include:

- Whether the analysis will make assumptions concerning CO<sub>2</sub> emissions of Annex I Parties after the dates specified proposals that have been made in the AGBM to limit such emissions of Annex I Parties, and, if so, whether those emissions will remain constant or increase or decrease (and, in either of the later two events, at what rate).

- The assumptions concerning each of the non-CO<sub>2</sub> gases, or at least the "major" non-CO<sub>2</sub> gases (such as methane nitrous oxide, and the CFC substitutes), including the assumptions concerning those gases after 1990 and after the dates specified in proposals that have been made in the AGBM to limit emissions of Annex I Parties.
- The assumptions concerning greenhouse gas emissions by non-Annex I Parties.
- The assumptions concerning global sulfate aerosols related to each of the different profiles of scenarios of CO<sub>2</sub> emissions.
- The assumptions concerning changes in CO<sub>2</sub> sinks, taking into account proposals for commitments of Annex I Parties to preserve or enhance sinks.

During the fourth session of the SBSTA, the informal contact group was not able to reach agreement on the first three of these issues, and it did not address the last two. Resolution of all of these issues will have direct bearing on the results of the proposed IPCC analysis. The fact that these issues are controversial emphasizes why the governments participating in the IPCC, and not merely the Bureau, should exercise final approval of the analysis, including how the analytical results are expressed.

2. Any IPCC analysis of the temperature sea level or other climatic implications of proposed emissions limitations for of any other emission profiles or scenarios must be accompanied by IPCC analysis of the economic impacts of the same proposals, emission profiles or scenarios.

The second session of SBSTA identified the IPCC studies that it desired in Annex III to the report of that session. Annex III placed in the same "box" studies to "assess the economic impacts on all Parties, including non-Annex I Parties, of any proposed new commitments to be undertaken by Annex I Parties "and to" assess the implications of different emission limitation proposals including any proposal new commitments to be undertaken by Annex I Parties on projected temperature increases, sea level rise and other change in climate". This was clear statement of subset's desire that the IPCC studies on climate change impacts and economic impacts should be companion studies.

Policymakers cannot make informed judgments about proposed protocols, or about the implications of alternative emission profiles or scenarios, unless they are informed about both the climate and economic implications. Even if some proposals, profiles, or scenarios offered the prospect of averting some temperature increase or sea level rise, those potential benefits would have to be considered in light of the projected economic costs of the same proposals, profiles, or scenarios. Otherwise, the analysis would be incomplete and unbalanced.

3. In accordance with the decision at the second session of SBSTA, any IPCC analysis of temperature, sea level, or other climatic implications of alternative emission profiles or scenarios must be confined to proposals that have been made in the AGBM. This means that such analysis: (a) must avoid speculation about emissions of Annex I Parties after the dates specified in such proposals, (b) must not be confined to emissions of CO<sub>2</sub>, (c) must reflect all proposals, including proposals for differentiation of commitments by Annex I Parties, and (d) must not assume limitations of emissions of non-Annex I Parties. To enable informed analysis, it should be deferred until all Parties have had opportunity to submit proposals during the sixth session of the AGBM.

It is clear that the purpose of the SBSTA's request for the study in question was, if possible, to inform policymakers of the climate implications of proposals for a protocol or another legal instrument that would be considered during the AGBM negotiations. The decision of the second session of SBSTA as set forth in Appendix III of the report of that session, called for the IPCC to "assess the implications of different emissions limitation proposals including any proposed new commitments to the undertaken by Annex I Parties on projected temperature increases, sea level rise and other change in climate". This was not a request for the IPCC to exercise its own judgment about what emission profiles or scenarios should be analyzed or to create "extended", or "hypothetical", or "idealized" profiles or scenarios.

There are important reasons why the IPCC's analysis should be confined to proposals that actually are made by Parties during the AGBM negotiations.

First: the purpose of the analysis is to inform policymakers, if possible, of the climate consequences of what they might agree to during the AGBM negotiations. Therefore, any emission profiles or scenarios invented by the IPCC for purpose of the analysis necessarily will have policy implications. The IPCC should not become involved in such matters and instead should analyze those scenarios that are indicated by what the Parties themselves have proposed.

It is noteworthy that, according to the 17 December 1996 (8:24 PM) draft prepared by the distinguished Chairman of the informal contact group dealing with these issues, the predominant view of the contact group was: "The SBSTA requested the IPCC to develop emission profiles based on all emission limitation proposals submitted to the secretariat by all Parties by 15 January 1997, including the differentiation of commitments among Annex I Parties. No profile developed from a proposal should be extended beyond a timeframe developed in that proposal; the IPCC should not introduce additional proposals outside the range of parties submissions".

Second: Any departure of an emissions profile or scenario from what would result as a consequence of proposals by Parties in the AGBM would be arbitrary and wholly speculative. For example, any profile or scenarios that assume emissions levels for those Parties after the latest date specified in a proposal ignores the fact that such emissions could increase or decrease in amounts that cannot be foreseen. Many factors, including economic and technology developments, national policies that are unrelated to climate change, and, most importantly, the outcome of future negotiations under the UNFCCC, will determine future emissions levels of Annex I Parties. Cumulative net emissions throughout the time period that is analyzed will determine temperature and sea level rise. This means that, since

no current proposal specifies what happens to emissions after 2010, it is the wholly unknown cumulative emissions after that date (or others specified in a Party's proposal made in the AGBM) which largely will determine temperature and sea level rise at the end of the next century. Therefore, emissions profiles or scenarios that make arbitrary assumptions for the period following the one that is the subject of proposals actually made by Parties in the AGBM will tell us nothing about the climate implications of those proposals.

It is worth repeating that according to the 17 December 1996 (8:24 PM) draft prepared by the Chairman of the informal contact group dealing with these issues, the predominant view of the contact group was: "No profile developed from a proposal should be extended beyond a timeframe developed in that proposal, the IPCC should not introduce additional proposals outside the range of Parties' submissions."

Third: An IPCC analysis that reflects limitations only on CO<sub>2</sub> emissions of Annex I Parties would be contrary to the Berlin Mandate, which states that the AGBM process "shall be guided by a coverage of all greenhouse gases, their emissions by sources and removals by sinks and all relevant sectors" and also would be contrary to every QELROs proposal made to date in the AGBM, none of which is confined to CO<sub>2</sub> emissions limitations. It would be highly unrealistic and, therefore, uninformative to confine the analysis to CO<sub>2</sub> limitations, as was proposed by the original draft of Technical Paper 3 of IPCC Working Group I. Again, it is noteworthy that the 17 December draft proposed by the Chairman of the contact group on this issue stated the predominant view of the group: "Such analysis must be based on all major greenhouse gases and aerosols".

There are many combinations of commitments that might be undertaken by Annex I Parties concerning all greenhouse gases and sinks. Speculation by the IPCC as to what the resultant profiles or scenarios might be performed no useful task. Instead, the IPCC should analyze what the Parties will have before them as their negotiations progress.

Fourth: Several Parties (including Australia, France, Iceland, Japan, Norway, Republic of Korea, and the Russian Federation) have proposed that the new commitments of Annex I Parties should not be the same for all Annex I Parties. It is unfair to ignore those positions. Therefore, any analysis should reflect the differentiation of commitments of Annex I Parties that may be proposed in the AGBM. As noted earlier, that was the predominant view in the informal contact group on this issue.

Fifth and most importantly: It would be totally improper for the analysis to make any assumptions concerning future limitations on greenhouse gas emissions of non-Annex I Parties. The purpose of the analysis is to inform policymakers, if possible, of the climate implications of proposals to be considered by the AGBM, but it is well known that the Berlin Mandate forbids consideration of new commitments by non-Annex I Parties. The IPCC should not make assumptions concerning future global emissions that are contrary to the clear provisions of the Berlin Mandate.

It is recognized that most of the formal proposals made in the AGBM currently lack sufficient detail to analyze their temperature, sea level rise, or other climate implications. That does not mean that the IPCC should not have the license to "fill in the blanks". By the end of the sixth session of the AGBM in the first week of March 1997, the Parties will have



submitted a large number of proposals in the form of text for a protocol or another legal instrument. Rather than having the IPCC speculate about future levels of CO<sub>2</sub> and other greenhouse gas emissions of Annex I Parties, how such levels will vary in light of proposals for differentiation among Annex I Parties, how such levels will vary in light of proposals for differentiation among Annex I Parties, and the effects of commitments of Annex I Parties to preserve and enhance sinks, it would be vastly preferable to commence the analysis in question only after the Parties' proposals are known. If, in fact, the IPCC undertakes the analytical effort, deferring its commencement until conclusion of AGBM-6 is a small price to pay in exchange for being faithful to what the various parties actually have proposed to their colleagues.

4. Great care must be taken in assumptions concerning sulfate aerosols to be sure they reflect not only proposals to limit CO<sub>2</sub> emissions of Annex I Parties, but also increased sulfate aerosols of non-Annex I Parties.

The IPCC's Second Assessment Report recognized the important role played by sulfate aerosols in projecting future temperature and sea level changes. This suggests that any reductions of future CO<sub>2</sub> emissions by Annex I Parties that would occur as a result of proposals for new commitments by Annex I Parties would be accompanied by some, not a proportional, decline in anthropogenic sulfate aerosols of those Parties. At the same time, as recognized in the preamble of the UNFCCC, "the share of global emissions (of greenhouse gases) originating in developing countries will grow to meet their social and development needs". This suggests that that anthropogenic sulfate aerosols of non-Annex I Parties will increase. The Second Assessment Report does not suggest otherwise. The Analysis of temperature, sea level, and other climate change implications of proposals for new commitments by Annex I Parties must not ignore the increases in anthropogenic sulfate aerosols of non-Annex I Parties.

5. The analysis must compare temperature and sea level change implications of proposed new commitments of Annex I Parties against the temperature and sea level change implications of all of the IPCC IS92 emission scenarios.

The IPCC has developed six emissions scenarios, IS92 "a" through "f". However, the IPCC sometimes has chosen to present analysis of only some of those scenarios, IS92 "a", "c", and "e". Although the IS92 "c" and "e" scenarios "bracket" the range of the six IS92 scenarios, some policymakers will discount either or both of them, because they reflect what some people regard as "extreme" assumptions they make. Examples are the low population assumptions of the IS92c scenario and the eventual elimination of all nuclear power in the IS92e scenario. As a result, the attention of those policymakers who wish to disregard scenarios "c" and/or "e" is focused on the IS92a scenario.

This is unfortunate, since, in its Special Report entitled "Climate Change 1994" (at page 297), the IPCC stated that "at this time there is no objective basis for assessing that one scenario is more likely to occur than another". Therefore, comparison of the climate implications of proposed new commitments of Annex I Parties should be made against the climate implications of all of the IS92 emissions scenarios.

6. If the analysis will compare temperature and sea level (or cumulative emissions) implications of proposed new commitments of Annex I Parties against the temperature and sea level (or cumulative emission) implications of alternative levels and dates at which greenhouse gas concentrations might be stabilized the analysis should make such comparisons against the full range of stabilization levels and dates that have been considered by the IPCC.

In the Second assessment Report, the IPCC presented information about emissions profiles and cumulative emissions that would be associated with atmospheric of from 350 to 1000 ppmv. The COP has not determined the concentration levels or dates at which concentrations of greenhouse gases should be stabilized to meet the ultimate objective of Article 2 of the UNFCCC. Therefore, any comparisons of the temperature and sea level (or cumulative emissions) implications of proposed new commitments of Annex I Parties against the temperature and sea level (or cumulative emissions) implications of alternative concentrations levels and dates must involve the full range of stabilization levels and dates that have been considered by the IPCC.

PAPER NO. 3: NETHERLANDS  
(on behalf of the European Community and its member States)

**Submission from Netherlands**  
**Emission Profiles**

With respect to the IPCC's request for guidance on greenhouse gas emission profiles, beyond 2010, the EU notes that in paragraph 23 of FCCC/AGBM/1996/10 a number of proposals for emission reductions for Annex I Parties is presented. The EU supports the principle of using extended and illustrative profiles to represent the range of proposals. This principle has been applied in the draft IPCC technical paper to enable the full range of different emission reduction proposals to be assessed. The EU suggests that emission profiles should at least range from a profile with a 0.5% reduction per annum after 2000 to a profile with a 20% reduction by 2005 followed by a 2% reduction per annum thereafter. In addition to these cases the EU suggests that the cases of constant emissions after 2000 at the 1990 level and constant emissions at the 1990 level by 2000 followed by a 1% and a 2% reduction per annum subsequently also be studied. There is ambiguity regarding the intentions to reduce CO<sub>2</sub> emissions or all greenhouse gas emissions in the proposal already published. The EU suggests that both options be investigated.

For each of these cases the IPCC IS92 scenarios should be used for non-Annex-I Parties.

**Submission from Nigeria**

**Comments on Agenda Item 3 (Emission Profiles) pursuant to the conclusions of the fourth session of the Subsidiary Body for Scientific and Technological Advice**

1. **Any IPCC analysis of the temperature, sea level or other climatic implications of proposed emissions limitations or of any other emission profiles or scenarios) should be prepared only as an IPCC Special Report and should not be prepared as a Technical Paper.**

The Conclusions of the fourth session of the Subsidiary Body for Scientific and Technological Advice (SBSTA) did not specify that the analysis should be undertaken as a Technical Paper. Since the issue of whether the analysis should be prepared as a Special Report or as a Technical Paper was intensely debated at the session, but the Conclusions failed to request a Technical Paper, there is no justification to interpret the Conclusions as implying SBSTA's desire for a Technical Paper. The Conclusions merely requested the IPCC to complete the work "as soon as possible on the basis of these submissions in consultation with the Joint Working Group". The quoted phrase is entirely consistent with preparation of the analysis as a Special Report.

The principal procedural difference between a Special Report and a Technical Paper is that the Bureau of the IPCC possesses the final authority for approval of the content of a Technical Paper, whereas the IPCC participating governments exercise final approval (called "acceptance") of a Special Report. The sole justification for granting the IPCC Bureau such authority over Technical Papers is that Technical Papers are to be based on the material already in existing IPCC reports, such as the Second Assessment Report. However, the analysis in question will be based on new material that has not been contained in any existing IPCC report, *i.e.*, analysis of the temperature, sea level, and other climatic implications of alternative emission profiles or scenarios that never have been constructed or analyzed by the IPCC before now.

Construction of the new emissions profiles or scenarios that will be analyzed will involve many controversial assumptions. These will include:

- Whether the analysis will make assumptions concerning CO<sub>2</sub> emissions of Annex I Parties after the dates specified in proposals that have been made in the AGBM to limit such emissions of Annex I Parties, and if so, whether those emissions will remain constant or decrease (and, in either of the latter two events, at what rate).
- The assumptions concerning each of the non-CO<sub>2</sub> gases, or at least the "major" non-CO<sub>2</sub> gases (such as methane, nitrous oxide, and the CFC substitutes), including the assumptions concerning those gases after 1990 and after the dates specified in proposals that have been made in the AGBM to limit such emissions of Annex I Parties.
- The assumptions concerning greenhouse gas emissions by non-Annex I Parties.

- The assumptions concerning global sulphate aerosols related to each of the different profiles or scenarios of CO<sub>2</sub> emissions.
- The assumptions concerning changes in CO<sub>2</sub> sinks, taking into account proposals for commitments of Annex I Parties to preserve or enhance sinks.

During the fourth session of the SBSTA, the informal contact group was not able to reach agreement on the first three of these issues, and it did not address the last two. Resolution of all of these issues will have direct bearing on the results of the proposed IPCC analysis. The fact that these issues are controversial emphasises why the governments participating in the IPCC, and not merely the Bureau, should exercise final approval for the analysis, including how the analytical results are expressed.

**2. Any IPCC analysis of the temperature, sea level, or other climatic implications of proposed emissions limitation (or of any other emission profiles or scenarios) must be accompanied by IPCC analysis of the economic impacts of the same proposals, emission profiles, or scenarios.**

The second session of SBSTA identified the IPCC studies that it desired in Annex III to the report of that session. Annex III placed in the same "box" studies to "assess the economic impacts on all Parties, including non-Annex I Parties, of any proposed new commitments to be undertaken by Annex I Parties" and to "assess the implications of different emission limitation proposals including any proposed new commitments to be undertaken by Annex I Parties on projected temperature increases, sea level rise and other change in climate". This was a clear statement of SBSTA's desire that the IPCC studies on climate change impacts and economic impacts should be companion studies.

Policymakers cannot make informed judgements about protocols, or about the implications of alternative emission profiles or scenarios, without the benefit of both the climate and economic implications. The potential benefits of any proposals, profiles, or scenarios must therefore be considered in light of their. Otherwise, the analysis would be incomplete and unbalanced.

**3. In accordance with the decision at the second session of SBSTA, any IPCC analysis of temperature, sea level, or other climate implications of alternative emission profiles or scenarios must be confined to proposals that have been made in the AGBM : This means that such analysis : (a) must avoid speculation about emissions of Annex I Parties after the dates specified in such proposals, (b) must not be confined to emissions of CO<sub>2</sub>, (c) must reflect all proposals, including proposals for differentiation of commitments by Annex I Parties, and (d) must not assume limitations of emissions of non-Annex I Parties. To enable informed analysis, it should be deferred until all Parties have had opportunity to submit proposals during the sixth session of the AGBM.**

It is clear that the purpose of the SBSTA's request for the study in question was if possible, to inform policymakers of the climate implications of proposals for a protocol or another legal instrument that would be considered during the AGBM negotiations. The decision of the second session of SBSTA, as set forth in Appendix

III of the report of that session, called for the IPCC to "assess the implications of different emissions limitation proposals including any proposed new commitments to be undertaken by Annex I Parties on projected temperature increases, sea level rise and other change in climate". This was not a request for IPCC to exercise its own judgement about what emission profiles or scenarios should be analyzed or to create "extended" or "hypothetical" or "idealised" profiles or scenarios.

There are important reasons why the IPCC's analysis should be confined to proposals that actually are made by Parties during the AGBM negotiations.

- a) The purpose of the analysis is to inform policymakers, if possible, of the climate consequences of what they might agree to during the AGBM negotiations. Therefore, any emissions profiles or scenarios invented by the IPCC for purpose of the analysis necessarily will have policy implications. The IPCC should not become involved in such matters and instead should analyze those scenarios that are indicated by what the Parties themselves have proposed.

It is note worthy that, according to the 17 December 1996(8.24PM) draft prepared by the distinguished Chairman of the informal contact group dealing with these issues, the predominant view of the contact group was. "The SBSTA requested the IPCC to develop emission profiles based on all emission limitation proposals submitted to the secretariat by all Parties by 15 January 1997, including the differentiation of commitments among Annex I Parties. No profile developed from a proposal should be extended beyond a timeframe developed in that proposal; IPCC should not introduce additional proposals outside the range of Parties' submissions".

- b) Any departure of an emissions profile or scenario from what would result as a consequence of proposals by Parties in the AGBM would be arbitrary and wholly speculative. For example, any profile or scenario that assumes emissions levels for those Parties after the latest date specified in a proposal ignores the fact that such emissions could increase or decrease in amounts that cannot be foreseen. Many factors, including economic and technology developments, national policies that are unrelated to climate change, and most importantly, the outcome of future negotiations under the UNFCCC, will determine future emissions levels of Annex I Parties. Cumulative net emissions throughout the time period that is analyzed will determine temperature and sea level rise. This means that, since no current proposal specified what happens to emissions after 2010, it is the wholly unknown cumulative emissions after that date (or others specified in a Party's proposal made in the AGBM) which largely will determine temperature and sea level rise at the end of the next century. Therefore, emission profiles or scenarios that make arbitrary assumptions for the period following the one that is the subject of proposals actually made by Parties in the AGBM will tell us nothing about the climate implications of those proposals.

- c) An IPCC analysis that reflects limitations only on CO<sub>2</sub> emissions of Annex I Parties would be contrary to the Berlin Mandate, which states that the AGBM process "shall be guided by coverage of all greenhouse gases, their emissions by sources and removals by sinks and all relevant sectors", and also would be contrary to every QELROs proposal made to date in the AGBM, none of which is confined to CO<sub>2</sub> emissions limitations. It would be highly unrealistic and, therefore, uninformative to confine the analysis to CO<sub>2</sub> limitations, as was proposed by the original draft of Technical Paper 3 of IPCC Working Group I. Again, it is noteworthy that the 17 December draft prepared by the Chairman of the contact group of this issue stated the predominant view of the group "Such analyses must be based on all major greenhouse gases and aerosols".

There are many combinations of commitments that might be undertaken by Annex I Parties concerning all greenhouse gases and sinks. Speculation by the IPCC as to what the resultant profiles or scenarios might be serves no useful task. Instead, the IPCC should analyze what the Parties will have before them as their negotiations progress.

- d) Several Parties (including Australia, France, Iceland, Japan, Norway, Republic of Korea, and the Russian Federation) have proposed that the new commitments of Annex I Parties should not be the same for all Annex I Parties. It is unfair to ignore those positions. Therefore, any analysis should reflect the differentiation of commitments of Annex I Parties that may be proposed in the AGBM. As noted earlier, that was the predominant view in the informal contact group on this issue.
- e) **Most importantly**, it would be totally improper for the analysis to make any assumptions concerning future limitations on greenhouse gas emissions of non-Annex I Parties. The purpose of the analysis is to inform policymakers, if possible, of the climate implications of proposals to be considered by the AGBM, but it is well known that the Berlin Mandate forbids considerations of new commitments by non-Annex I Parties. The IPCC should not make assumptions concerning future global emissions that are contrary to the clear provisions of the Berlin Mandate.

It is recognized that most of the formal proposals made in the AGBM currently lack sufficient detail to analyze their temperature, sea level rise, or other climate implications. That does not mean that the IPCC should "fill in the blanks". By the end of the sixth session of the AGBM in the first week of March 1997, the Parties will have submitted a large number of proposals in the form of text for a protocol or another legal instrument. Rather than having the IPCC speculate about future levels of CO<sub>2</sub> and other greenhouse gas emissions of Annex I Parties, how such levels will vary in light of proposals for differentiation among Annex I Parties, and the effects of commitments of Annex I Parties to preserve and enhance sinks, it would be vastly preferable to commence the analysis in question only after the Parties' proposals are known.

If, in fact, the IPCC undertakes the analytical effort, deferring its commencement until conclusion of AGBM-6 is a small price to pay in exchange for being faithful to what the various Parties actually have proposed to their colleagues.

4. **Great care must be taken in assumptions concerning sulphate aerosols to be sure they reflect not only proposals to link CO<sub>2</sub> emissions of Annex I Parties but also increased sulfate aerosols of non-Annex I Parties.**

The IPCC's Second Assessment Report recognised the important role played by sulphate aerosols in projecting future temperature and sea level changes. This suggests that any reductions of future CO<sub>2</sub> emissions by Annex I Parties that would occur as a result of proposals for new commitments by Annex I Parties would be accompanied by some not a proportional, decline in anthropogenic sulphate aerosols of those Parties. At the same time, as recognized in the Preamble of the UNFCCC, "the share of global emissions (of greenhouse gases) originating in developing countries will grow to meet their social and development needs". This suggests that anthropogenic sulphate aerosols of non-annex I Parties will increase. The analysis of temperature, sea level, and other climate change implications of proposals for new commitments by Annex I Parties therefore must not ignore the increases in anthropogenic sulphate aerosols of non-Annex I Parties.

5. **The analysis must compare temperature and sea level change implications of proposed new commitments of Annex I Parties against the temperature and sea level change implications of all of the IPCC IS92 emissions scenarios.**

The IPCC has developed six emissions scenarios, IS92 "a" through "f". However, the IPCC sometimes has chosen to present analyses of only some of those scenarios, IS92 "a," "c", and "e". Although the IS92 "c" and "e" scenarios "bracket" the range of the six IS92 scenarios, some policymakers will discount either or both of them, because they reflect what some people regard as "extreme" assumptions they make. Examples are the low population assumptions of the IS92e scenario and the eventual elimination of all nuclear power in the IS92e scenario. As a result, the attention of those policymakers who wish to disregard scenarios "c" and/or "e" is focused on the IS92a scenario.

This is unfortunate, since, in its Special Report entitled "Climate Change 1994" (at page 297), the IPCC stated that "at this time there is no objective basis for assessing that one scenario is more likely to occur than another". Therefore, comparison of the climate implications of proposed new commitments of Annex I Parties should be made against the climate implications of all of the IS92 emissions scenario.



6. **If the analysis will compare temperature and sea level (or cumulative emissions) implications of proposed new commitments of Annex I Parties against the temperature and sea level (or cumulative emissions) implications of alternative levels and dates at which greenhouse gas concentrations might be stabilized the analysis should make such comparisons against the full range of stabilization levels and dates that have been considered by the IPCC.**

In the Second Assessment Report, the IPCC presented information about emissions profiles and cumulative emissions that would be associated with atmospheric concentrations of from 350 to 1000 ppmv. The COP has not determined the concentration levels or dates at which concentrations of greenhouse gases should be stabilized to meet the ultimate objective of Article 2 of the UNFCCC. Therefore, any comparisons of the temperature and sea level (or cumulative emissions) implications of proposed new commitments of Annex I Parties against the temperature and sea level (or cumulative emissions) implications of alternative concentration levels and dates must involve the full range of stabilization levels and dates that have been considered by the IPCC.

**Submission from Switzerland**  
**Long-Term Emission Profiles**

In response to the call at SBSTA 4 for comments concerning the issues related to long term emission profiles arising from its request to the IPCC for information on the implications of different emission limitation proposals, in terms of projected increase in global mean temperatures, sea level rise and other changes in climate, Switzerland presents the following views.

1. Switzerland is pleased with the decision of SBSTA requesting IPCC to complete the Technical Paper on "Temperature and sea level implications of proposed CO<sub>2</sub> emissions limitations" as soon as possible.
2. In its proposal to AGBM 5 (cf. document FCCC/AGBM/1996/MISC.2/Add.3), Switzerland has submitted elements for a protocol with a reduction objective of 10% of total greenhouse gas emissions of Annex I Parties by the year 2010 compared to 1990 levels.
3. We think that this IPCC Technical Paper should present all available scientific information in order to help Parties in the negotiating process of the Berlin Mandate. We therefore request results on atmospheric concentrations of all greenhouse gases and projections on increase in global mean temperatures, sea level rise and other changes in climate up to the year 2100. The reason to extend results to that date is that the inertia of the climate system is such that emissions of greenhouse gases as well as measures adopted in the framework of the Berlin Mandate aimed at reducing these emissions will continue to influence the climate system after the year 2020.
4. Furthermore, Switzerland proposes that the respective contributions to the emissions of Annex I countries and those of non-Annex I countries be represented separately. This will allow to understand more precisely the effects of the measures adopted by Annex I Parties in the framework of the Protocol aimed to reduce their emissions of greenhouse gases, and the evolution of the non-Annex I Parties emissions, which will take no emissions control measures. This separation of the contributions to the emissions does not contain any assumption on new commitments, neither for Annex I Parties beyond the time frames of the Berlin Mandate, nor for non-Annex I Parties.

**Submission from United States of America**  
**Emission Profiles**

The U.S. is pleased to provide input for discussion of emission profiles that will be used for the IPCC technical paper on future projections of temperature and sea level rise. The U.S. had significant concerns regarding the profiles used in the initial analyses for this paper. The profiles in the initial draft assume "extended versions" of the proposals offered by Parties to the Convention, providing for further reductions in emissions for Annex I countries, but no reductions from baseline emissions for non-Annex I countries. In effect, this approach extends only the Annex I commitments beyond the current round of negotiations, notwithstanding the emphasis that many Parties have placed on the need to enlist the cooperation of all Parties in undertaking new commitments at subsequent stages of negotiations. This approach could be construed as staking out an IPCC view on the future direction of the negotiating process, involving IPCC in matters that are clearly beyond its purview. To avoid any perception that IPCC's independent scientific role is being compromised, the emissions profiles used in this paper should adhere closely to the protocol proposals as they exist through AGBM5.

Recognizing that many of the existing protocol proposals do not address long-run emissions futures, the U.S. endorses a series of sensitivity runs, using several alternative assumptions about where global emissions could be by the end of the next century. The sensitivity cases should not distinguish between Annex I and non-Annex I emissions limitation rates. All the cases should be specified on global emissions only. This will help reduce the possible politicization of the technical report.

The U.S. also believes it is essential that consideration of non-CO<sub>2</sub> greenhouse gases and sinks (as well as sulfate aerosols) be included in the analysis. Each of the analyses of protocol options and sensitivity cases should aggregate global GHG emissions by IPCC global warming potentials. The U.S. also believes that a careful distinction between "protocol" proposals and sensitivity studies should be made.

The sensitivity studies should begin with the last period specified in the protocol proposal and develop a fan of possible emission levels at the end of the century relative to 1990 levels, e.g., halving, stabilizing, doubling and quadrupling of GHG emissions. Each sensitivity case would be specified for an end point accounting for all GHGs. Characterizing the fan in terms of gross emissions outcomes from 1990 levels is consistent with the way in which emissions futures have been characterized in other analyses and discussions.

Therefore, the U.S. believes that the sensitivity runs for each protocol proposal should be based on following cases:

1. A straight line emissions path leading to global emissions of half 1990 levels by the end of the century,
2. A straight line emissions path leading to global emissions of one-quarter of 1990 levels by the end of century,

3. A straight line emissions path leading to global emissions equal to 1990 levels by the end of the century,
4. A straight line emissions path leading to global emissions which are double 1990 levels by the end of the century, and
5. A straight line emissions path leading to global emissions which are quadruple 1990 levels by the end of the century.

At this time, we believe it is also necessary to continue efforts at convening a broad group of international experts in the social, economic and behavioral sciences to help interpret the results from these protocol options and the sensitivity runs.

As a longer term activity in support of the Third Assessment Report, we believe that it is necessary to continue efforts at convening a broad group of international experts in the social, economic and behavioral sciences to help construct new emissions scenarios. We are gratified that this work has been launched with the approval of a special report on emissions scenarios at IPCC's last Plenary meeting.

**Submission from Uzbekistan**  
**Comments on point (a) - interaction with IPCC**

The issue of the long-term forecasting of the emission profiles for the assessment of measures on mitigation of greenhouse gases emission regarding the predicted increase of temperature, rise of the sea level and other climate changes is one of the most topical in the development of strategies of response of countries to the climate change.

We consider, that at this stage of information collection concerning this issue it is expedient to change from the existing global approach to the forecasting of the greenhouse gases emission, mean temperature values, sea-level rise, etc. to the regional one. Such estimates will serve to clear up the existing uncertainties in forecasts which is many times being discussed and reproved by the policy makers concerning IPCC and, finally, more correct approach to the definition of measures for the decrease of greenhouse gases emission.

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