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METHODOLOGICAL ISSUES

GUIDELINES ON REPORTING AND REVIEW OF GREENHOUSE GAS INVENTORIES FROM PARTIES INCLUDED IN ANNEX I TO THE CONVENTION (IMPLEMENTING DECISIONS 3/CP.5 AND 6/CP.5)

Addendum

Recommendation of the Subsidiary Body for Scientific and Technological Advice

The SBSTA, at its sixteenth session, decided to recommend the following draft decision to the Conference of the Parties for adoption at its eighth session:

Draft decision -/CP.8

UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention

The Conference of the Parties,

Recalling the relevant provisions of the United Nations Framework Convention on Climate Change, in particular Articles 4 and 7 thereof,

Further recalling its decision 6/CP.5 on guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention,

Noting that the guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention, adopted by decision 6/CP.5, need to be revised to improve the consistency in the review of annual inventories and to ensure that the review process allows for a thorough and comprehensive technical assessment of Annex I Parties' annual national inventories,

Having considered the relevant recommendations of the Subsidiary Body for Scientific and Technological Advice,

1. *Adopts* the revised guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention, contained in the annex to this decision;
2. *Decides* to apply the above-mentioned guidelines for the technical reviews of greenhouse gas inventories to begin in 2003, in accordance with decision 6/CP.5, taking into consideration that the reporting guidelines on annual inventories used by Parties included in Annex I to the Convention in 2003 will be those adopted by decision 3/CP.5;
3. *Requests* the secretariat to conduct individual reviews until the end of the year 2006, pending availability of resources, by coordinating specifically:
 - (a) The in-country review of eight inventories per year;
 - (b) The review of the remaining annually submitted inventories through centralized and desk reviews. In organizing these reviews, the secretariat should give priority to the centralized reviews and should ensure that desk reviews are conducted only within the two subsequent years following an in-country review;
4. *Requests* the secretariat to prepare a report assessing the implementation of these guidelines, taking into account, inter alia, the experience gained by Parties included in Annex I to the Convention, the secretariat and the review experts, for consideration by the Subsidiary Body for Scientific and Technological Advice at its first session in the year 2006.

Annex

**GUIDELINES FOR THE TECHNICAL REVIEW OF GREENHOUSE
GAS INVENTORIES FROM PARTIES INCLUDED IN ANNEX I TO THE CONVENTION**

A. Objective

1. The objective of these guidelines is to promote consistency in the review of annual greenhouse gas (GHG) inventories of Parties included in Annex I to the Convention (Annex I Parties) and to establish a process for a thorough and comprehensive technical assessment of national inventories.

B. Purposes of the technical review of greenhouse gas inventories

2. The purpose of the technical review of Annex I Parties' GHG inventories is:

(a) To ensure that the Conference of the Parties (COP) has adequate and reliable information on annual inventories and emission trends of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol;

(b) To provide the COP with an objective, consistent, transparent, thorough and comprehensive technical assessment of the annual quantitative and qualitative inventory information submitted by Annex I Parties, and a technical assessment of the implementation of Annex I Parties' commitments under Article 4, paragraph 1 (a) and Article 12, paragraph 1 (a), of the Convention;

(c) To examine, in a facilitative and open manner, the reported inventory information for consistency with the guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories¹ and the *Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories*² as elaborated by the IPCC report entitled *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*;³

(d) To assist Annex I Parties in improving the quality of their GHG inventories.

C. General approach

3. Greenhouse gas inventory submissions from all Annex I Parties will be subject to an annual technical review. The technical review process for GHG inventories, as outlined in these guidelines, comprises three stages which consider different aspects of the inventories in such a way that all of the purposes described above are achieved by the end of the process. The three stages are:

(a) Initial check of annual inventories;

(b) Synthesis and assessment of annual inventories; and

(c) Review of individual annual inventories.

¹ In these guidelines, the guidelines for the preparation of national communications by Parties included in Annex I to the Convention, *Part I: UNFCCC reporting guidelines on annual inventories* are referred to as the reporting guidelines.

² In these guidelines, the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* are referred to as the IPCC Guidelines.

³ In these guidelines, the IPCC report entitled *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* is referred to as the IPCC good practice guidance.

4. The stages of the technical review process complement each other so that, in general, for each Annex I Party, one stage is concluded before the next one is undertaken.

5. At all stages of the inventory review process, individual Annex I Parties under review will have the opportunity to clarify issues or provide additional information. The secretariat will send to these Parties drafts of their status report, the synthesis and assessment report and a preliminary analysis of the respective Party's inventory, and their individual inventory review report. Every effort will be made to reach agreement with each Party on the content of a report prior to its publication. In the case of a Party and the expert team being unable to agree on an issue, the Party may provide explanatory text to be included in a separate section of the report.

D. Initial check of annual inventories

1. Scope

6. The secretariat will conduct annually an initial check of the annual GHG inventory submissions from Annex I Parties in order to determine promptly whether the information provided is complete and in the correct format, and to enable subsequent review stages to take place.

7. The initial check will cover the national inventory submission, in particular, the data submitted electronically in the common reporting format (CRF), and will determine:

(a) Whether all sources, sinks and gases included in the IPCC Guidelines, as elaborated by the IPCC good practice guidance, are reported;

(b) Whether all tables of the common reporting format have been completed and any gaps have been explained in the CRF by use of notation keys (such as NE, NA, NO, IE, C)⁴ and whether there is frequent use of these notation keys;

(c) Whether estimates for summary totals and individual source categories are provided in mass units and in CO₂ equivalent using the IPCC global warming potential (GWP) values in accordance with the relevant decisions of the COP;

(d) Whether emission estimates are provided for all required years (i.e., from the base year to the latest year in the current submission);⁵

(e) Whether methodologies are indicated with notations in the CRF;

(f) Whether estimates for CO₂ emissions from fossil fuel combustion are reported using the IPCC Reference Approach in addition to estimates derived using national methods;

(g) Whether actual and potential emission estimates for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride are reported by individual chemical species;

(h) Whether any recalculations are reported for the entire time series and explanatory information relating to these recalculations is provided in the CRF;

(i) Whether all emissions are reported without adjustments related, for example, to climate variations or trade of electricity;

⁴ NE = not estimated, NA = not applicable, NO = not occurring, IE = included elsewhere, C = confidential.

⁵ In accordance with the reporting guidelines, if there are no changes in the previously submitted inventories, the national inventory report (NIR) should reference the inventory submission where the other years constitute the time series.

- (j) Whether emissions from fuel used in international transportation are reported separately from national totals;
- (k) Whether key sources have been reported in the CRF as required by the reporting guidelines;
- (l) Whether the tables on uncertainties have been reported as required by the reporting guidelines;
- (m) Whether a national inventory report (NIR) has been submitted.

2. Status reports

8. The results of the initial check for each Annex I Party will be published on the UNFCCC web site as a status report, mainly in a tabular format. The status report will, *inter alia*:

- (a) Indicate the date of receipt by the secretariat;
- (b) Indicate whether the NIR and the CRF have been submitted;
- (c) Determine whether the inventory information has been provided in the correct format as called for in the reporting guidelines;
- (d) Determine whether the submission is complete and will identify any gaps in the reported data, covering the elements listed in paragraph 7 above.

3. Timing

9. The initial check for each Annex I Party should be finalized and the status report published on the UNFCCC web site within seven weeks of the date of receipt of the submission by the secretariat. In general, the timetable for the initial check should conform to the following:

- (a) The secretariat should perform the initial check and prepare a draft status report within three weeks and send it to the Party for comments;
- (b) Each Party should provide comments on the draft status report within three weeks.

E. Synthesis and assessment of annual inventories

1. Scope

10. The secretariat will conduct a synthesis and assessment of Annex I Parties' greenhouse gas inventories to facilitate the consideration of inventory data and other information across Parties, and to identify issues for further consideration during the review of individual inventories.

11. The synthesis and assessment will cover the national inventory submission and previous national inventory submissions, where relevant, and will include a standardized set of data comparisons of:

- (a) Implied emission factors and other inventory data across Annex I Parties to identify any irregularities or inconsistencies;
- (b) Emission or removal estimates, activity data, implied emission factors and any recalculations with data from previous submissions to identify any irregularities or inconsistencies;

(c) Activity data of each Annex I Party with relevant authoritative sources, if feasible, to identify cases where there are significant differences.

12. To facilitate the analysis of the inventory data, the secretariat will, for each individual Annex I Party, identify and consider those sources that are *key sources* both in terms of their absolute level and in terms of their trend assessment, applying the tier 1 level assessment as described in the IPCC good practice guidance. In addition, the secretariat will also consider other sources (i.e., emissions from bunker fuels, emissions and removals from land-use change and forestry,⁶ etc.) and non-key sources for which irregularities or inconsistencies are identified, based on their significance for specific sectors or for the whole GHG inventory.

2. Synthesis and assessment report

13. The synthesis and assessment will consist of two parts: part I and part II, which are described in paragraphs 14 and 15 below, respectively. The results of part I will be published on the UNFCCC web site as a synthesis and assessment report. Part II, containing a preliminary analysis of individual Annex I Party inventories, will be sent to the respective Party for comments. The results of part II, together with the comments provided by the respective Party, will be provided to the corresponding expert review team as input for the individual review.

Part I:

14. The synthesis and assessment report (part I) will provide information to allow comparisons across Annex I Parties and to describe common methodological issues. This report will compile and compare information across Parties in a tabular and, as appropriate, graphical format, including:

(a) For *key sources*, based on the approach used by the secretariat, and other selected sources:

- (i) Methodologies used in the preparation of the inventories;
- (ii) Implied emission factors, default values and ranges contained in the IPCC Guidelines, as elaborated by the IPCC good practice guidance;
- (iii) Reported activity data and data from authoritative sources, if possible;
- (iv) Other information provided in the various CRF tables;

(b) Estimates of CO₂ emissions from fuel combustion using the IPCC Reference Approach compared with estimates of CO₂ emissions from fuel combustion using a national (sectoral) approach;

(c) Estimates of actual and potential emissions of hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride and the ratio between the actual and potential emissions;

(d) Inventory recalculations.

Part II

15. The preliminary analysis of individual Annex I Party inventories (part II), will be based on the information contained in the synthesis and assessment report, and will, for each individual inventory:

⁶ For land-use change and forestry, good practice guidance has not, as yet, been elaborated.

- (a) Identify issues within source or sink categories requiring further consideration or clarification during the individual review stage;
- (b) Identify any recurring problems with reporting;
- (c) Examine inventory recalculations and the consistency of the time series;
- (d) Assess the availability of documentation on:
 - (i) National self-verification procedures or independent review in the technical review process;
 - (ii) The application of the IPCC good practice guidance, including estimations of uncertainties;
- (e) Assess the consistency of information on methodologies and emission factors in the CRF with related information in the NIR.

3. Timing

16. The synthesis and assessment will be conducted annually and should, in general, conform to the following timetable:

(a) The secretariat will complete the synthesis and assessment report (part I), containing the elements in paragraph 14 above, within 10 weeks from the due date for submission.⁷ The secretariat will incorporate all submissions and any re-submissions from Annex I Parties that were provided as a response to the status report and were received within six weeks from the due date for submissions. Parties should provide comments within three weeks of receipt of the draft synthesis and assessment report. If possible, the secretariat should complete a synthesis and assessment of the GHG inventories submitted after that date and should publish these assessments as separate documents (addenda to the synthesis and assessment report) provided that this does not delay the review process for other Annex I Parties;

(b) The preliminary analysis of individual Annex I Party inventories (part II of the synthesis and assessment), containing the elements in paragraph 15 above, will be completed at the latest four weeks prior to the scheduled individual review for the Party concerned. The secretariat will send a draft of the preliminary analysis to the Party at the latest seven weeks prior to the scheduled individual review, and the Party will provide comments within three weeks. The preliminary analysis and the Party's comments will be forwarded to the expert review team for further consideration.

F. Review of individual annual inventories

1. Scope

17. Expert review teams, coordinated by the secretariat, will conduct reviews of individual greenhouse gas inventories in order to assess whether the COP has adequate and reliable information on annual GHG inventories. The individual reviews will provide for a detailed examination of the inventory estimates, procedures and methodologies used in the preparation of inventories, covering each Annex I Party's national inventory submission, supplementary material submitted by the Party and, as

⁷ In accordance with decision 3/CP.5, the due date for submission of the GHG inventories of Annex I Parties is 15 April of each year.

appropriate, previous inventory submissions. The results of this stage of the review process will be communicated to Parties.

18. Three operational approaches may be used during this stage of the technical review, namely desk reviews, centralized reviews and in-country reviews, assuming available resources. During a desk review, inventory information of Annex I Parties will be sent to experts, who will conduct the review in their own countries. During a centralized review, the experts will meet in a single location to review the inventory information of Annex I Parties. During an in-country review, experts will visit an Annex I Party to review the inventory information of this Party.

19. The review of most individual inventories of Annex I Parties will be conducted annually as a desk review or as a centralized review. In addition, the GHG inventory of each Annex I Party will be subject to an in-country visit by an expert review team once every five years. In a year when an in-country review is scheduled, a desk or centralized review of the Party's GHG inventory will not take place. In-country visits will be scheduled, planned and take place with the consent of, and close coordination with, the Party subject to review. In general, during a centralized review, up to eight GHG inventories should be reviewed; during a desk review up to five GHG inventories should be reviewed.

20. Expert review teams should pay particular attention to those areas of the inventory where problems have been identified in previous reviews, or stages of the review, or where changes have been reported by the Party. Expert review teams should not perform an individual review in cases where a NIR has not been provided.

21. Each expert review team will:

(a) Examine application of the requirements of the reporting guidelines and the IPCC Guidelines, as elaborated by the IPCC good practice guidance, and identify any departure from these requirements;

(b) Examine whether the IPCC good practice guidance was applied and documented, in particular noting the identification of key source categories, selection and use of methodologies and assumptions, development and selection of emission factors, collection and selection of activity data, reporting of recalculations and consistent time-series, reporting of uncertainties related to inventory estimates, methodologies used for estimating those uncertainties and quality assurance and quality control procedures, and identify any inconsistencies;

(c) Compare emission or removal estimates, activity data, implied emission factors and any recalculations with data from previous submissions of the Party included in Annex I to identify any irregularities or inconsistencies;

(d) Identify any missing sources and examine any explanatory information relating to their exclusion from the GHG inventory;

(e) Identify the reason for any differences between the Party's and the secretariat's key source determination;

(f) Assess the consistency of information in the CRF with that in the NIR;

(g) Assess the extent to which issues raised in the synthesis and assessment of annual inventories, and issues and questions raised by expert review teams in previous reports have been addressed and resolved;

(h) Identify areas for further improvement of the inventories and note possible ways for improving the estimation and the reporting of inventory information.

22. In addition to the tasks mentioned in paragraph 21 above, expert review teams conducting in-country reviews will consider the “paper trail” of the inventory from the collection of data to the reported emission estimates and will examine procedures and institutional arrangements for inventory development and management, including quality assurance and quality control, record-keeping and documentation procedures. During subsequent desk or centralized reviews, the expert review teams will identify any changes that may have occurred in these procedures and institutional arrangements, based on the information provided in the NIRs of Annex I Parties.

23. The expert review team may use relevant technical information in the review process, such as information from international organizations

2. Expert review teams

General procedures

24. Each GHG inventory submission will be assigned to a single expert review team that will be responsible for performing the review in accordance with the procedures and time frames established in these guidelines. A submission by an Annex I Party will not be reviewed in two successive years by expert review teams with an identical composition.

25. Each expert review team will provide a thorough and comprehensive technical assessment of the GHG information submitted and will, under its collective responsibility, prepare a review report in accordance with the provisions of these guidelines.

26. Expert review teams will be coordinated by the secretariat which will provide administrative support, and, as appropriate, technical and methodological assistance and assistance in the use of the UNFCCC guidelines.

27. Expert review teams will be composed of experts selected on an ad hoc basis from the UNFCCC roster of experts and will include lead reviewers. Experts will be nominated by Parties to the Convention to the roster of experts and, as appropriate, by intergovernmental organizations, in accordance with guidance provided for this purpose by the COP. Participating experts will serve in their personal capacity and will neither be nationals of the Party under review nor be nominated or funded by that Party.

28. In the conduct of the review, expert review teams shall adhere to these guidelines and work on the basis of established and published procedures, including quality assurance and control and confidentiality provisions in accordance with the relevant decisions adopted by the COP.

29. The secretariat will notify Annex I Parties about up-coming desk and centralized reviews, and ask the Parties to identify the contact person(s) through whom enquiries could be directed. Communication between the expert review teams and the Party under review should be through the lead reviewers and the designated contact person(s) of the Party. Other members of the expert review team may communicate directly with the national experts involved in the GHG inventory preparation only if a Party so agrees. Information thus obtained should be made available to other members of the team.

30. Participating experts from Parties not included in Annex I to the Convention (non-Annex I Parties) and Annex I Parties with economies in transition will be funded according to the

existing procedures for participation in UNFCCC activities. Experts from other Annex I Parties will be funded by their governments.

Composition of the expert review teams

31. Participating experts shall have experience in the area of GHG inventories in general and/or in specific sectors (Energy, Industrial Processes, Solvents and Other Products Use, Agriculture, Land-Use Change and Forestry and Waste).
32. Expert review teams may vary in size and composition, taking into account the national circumstances of the Party under review and the different expertise needs. In general, the normal size of the expert review teams should be:
- (a) Six experts for in-country visits (one expert per inventory sector⁸ plus one generalist⁹);
 - (b) Twelve experts for desk and centralized reviews (two experts per inventory sector⁸ plus two generalists⁹).
33. The secretariat will select the members of the review teams in a way that will ensure that the collective skills of the team address the areas mentioned in paragraph 31 above and that most experts in the ERTs have the necessary experience in the review process. The secretariat will select national inventory experts with limited or no experience of the review process and invite one of these experts to participate in each in-country review, with a maximum of five experts to participate in each centralized review. These experts with limited or no experience of the review process will work on a specific IPCC sector together with an expert with experience of the review process. Desk reviews will be conducted only by experienced experts.
34. The secretariat will select the members of the expert review teams with a view to achieving a balance between experts from Annex I Parties and non-Annex I Parties in the overall composition of the expert review teams, without compromising the selection criteria referred to in paragraph 31 above. The secretariat shall make every effort to ensure geographical balance among those experts selected from non-Annex I Parties and among those experts selected from Annex I Parties.
35. Without compromising the criteria stated in paragraphs 31 to 34 above, the formation of expert review teams should ensure, to the extent possible, that at least one member is fluent in the language of the Party under review.

Lead reviewers

36. For each expert review team, two inventory experts with substantial inventory review experience will serve as lead reviewers. One lead reviewer will be from a non-Annex I Party and one from an Annex I Party.
37. Lead reviewers should ensure that the review in which they participate is performed according to these guidelines and is performed consistently across all Annex I Parties under review by the expert review team. They should also ensure the quality and the objectivity of the technical assessments in the reviews.

⁸ The expert(s) dealing with the Industrial Processes sector should also be responsible for the Solvents and Other Products Use sector, which, in general, does not constitute a major source of GHG emissions.

⁹ The term "generalist" in these guidelines is used for experts who have broad knowledge of all areas of the inventory process.

38. With the support of the secretariat, lead reviewers will:
- (a) Prepare a brief work plan for the review activity;
 - (b) Verify that the experts have all the necessary information provided by the secretariat prior to the review activity;
 - (c) Monitor the progress of the review activity;
 - (d) Ensure that there is good communication within the expert review team;
 - (e) Coordinate queries of the expert review team to the Party and coordinate the inclusion of the answers in the review reports;
 - (f) Provide technical advice to the ad hoc experts, if needed;
 - (g) Ensure that the review is performed and the review report is prepared in accordance with these guidelines; and
 - (h) Verify that the review team gives priority to individual source categories for review in accordance with these guidelines.

3. Individual review reports

39. Under its collective responsibility, the expert review team will produce an individual inventory review report for publication in electronic format on the UNFCCC web site based on the results of the tasks listed in paragraph 21 above. The review reports should contain an objective assessment of the adherence of the inventory information to the reporting guidelines and the provisions of relevant decisions by the COP and should not contain any political judgement.

40. The report of all in-country reviews should not exceed 25-30 pages including a 2-3 page summary. For desk and centralized reviews, the report should not exceed 10 pages and should focus on particular strengths and identified problems as well as on an overall appraisal of the quality and reliability of the inventory, emission trends, actual emission factors and activity data, and on the degree of adherence to the reporting guidelines and the IPCC good practice guidance. Both types of review reports should include standardized tables, whenever possible, to increase the efficiency of communication.

4. Timing

41. The secretariat should forward all relevant information to the members of the expert review teams one month prior to the start of the review activities. Each desk or centralized review should be completed within 20 weeks and 22 weeks, respectively, and each in-country review should be completed within 14 weeks. In general, the timetable for the individual review activities, assuming available resources, should conform to the following:

(a) *Desk review*: each expert review team performs individual reviews and prepares draft review reports within seven weeks (three weeks for individual reviews and four weeks for the preparation of the reports). The secretariat edits and formats the reports and sends them to the respective Annex I Party for comments. The Parties respond within four weeks. The expert review team integrates the Parties' comments within four weeks and sends the revised versions of the reports to the secretariat. The final reports are published on the UNFCCC web site within two weeks.

(b) *Centralized review*: each expert review team performs individual reviews and prepares draft review reports within ten weeks (up to eight working days for individual reviews and nine weeks for the preparation of the reports). The secretariat edits and formats the reports and sends them to the respective Annex I Party for comments. The Parties respond within four weeks. The expert review team integrates the Parties' comments within six weeks and sends the revised versions of the reports to the secretariat. The final reports are published on the UNFCCC web site within two weeks.

(c) *In-country review*: each expert review team performs the individual review within one week and prepares a draft review report within three weeks. The secretariat edits and formats the report and sends it to the respective Annex Party for comments. The Party responds within four weeks. The expert review team integrates the Party's comments within three weeks and sends the revised version of the report to the secretariat. The final report is published on the UNFCCC web site within one week.

G. Annual report of emissions and trends of greenhouse gases

42. As part of the technical review of annual national GHG inventories, the secretariat will also compile and tabulate aggregate information and trends concerning greenhouse gas emissions by sources and removals by sinks, and any other inventory information in a stand-alone document to be published electronically on the UNFCCC web site. This document will draw information from the latest available GHG inventory submissions of all Annex I Parties and will serve to provide aggregate information to the COP on GHG emissions by sources and removals by sinks and their trends for all Annex I Parties. This document may also be used as an input to the third stage of the technical review process.

43. A summary of the document mentioned in paragraph 42 above will be published in both hard copy and electronic format for the consideration of the COP and the subsidiary bodies.¹⁰ This summary will include trends of GHG emissions by sources and removals by sinks and an assessment of the adherence of the reported inventory information to the reporting guidelines, as well as to the provisions of relevant decisions by the COP, including, *inter alia*, information on any delays in submitting the annual inventory information.

¹⁰ In order to ensure the quality and timeliness of the information included in this summary, the secretariat will prepare this report for the consideration of the Convention bodies during the second sessional period scheduled for each year.