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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

Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, part I: UNFCCC reporting guidelines on annual inventories

The Conference of the Parties,

Recalling the relevant provisions of the United Nations Framework Convention on Climate Change, in particular Articles 4, 10.2 and 12 thereof,

Further recalling its decisions 3/CP.1 on preparation and submission of national communications from Parties included in Annex I to the Convention, 4/CP.1 on methodological issues, 9/CP.2 on communications from Parties included in Annex I to the Convention: guidelines, schedule and process for consideration, 11/CP.4 on national communications from Parties included in Annex I to the Convention, and 3/CP.5 on guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories,

Reaffirming that anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol should be reported in a transparent, consistent, comparable, complete and accurate way,

Noting that 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, adopted by decision 3/CP.5, need to be revised to improve the transparency, consistency, comparability, completeness and accuracy of the reported national greenhouse gas inventories and other information,

Further noting the improvements Parties included in Annex I to the Convention have made in providing complete and timely annual greenhouse gas inventories,

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

1. *Adopts* the revised guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories, contained in the annex to this decision;
2. *Decides* that Parties included in Annex I to the Convention should use these UNFCCC guidelines on annual inventories in preparing their inventories due by 15 April each year, beginning in the year 2004;
3. *Decides* that Parties included in Annex I to the Convention should use the UNFCCC reporting guidelines on annual inventories adopted by decision 3/CP.5 in preparing their inventories due by 15 April 2003;
4. *Requests* the secretariat, pending availability of resources, to develop by October 2003 a new software for reporting in the common reporting format included in the annex to these guidelines on annual inventories, in order to facilitate Parties' inventory submissions due by 15 April 2004;
5. *Requests* Parties included in Annex I to the Convention to publish on their national web sites their national inventory submissions consisting of the national inventory report and common reporting format, and to inform the secretariat of the exact address of these publications on the World Wide Web;
6. *Requests* the secretariat to publish on its web site the officially submitted annual inventory submissions consisting of the national inventory report and common reporting format of all Parties included in Annex I to the Convention, and publish as well the address of Parties' web sites where these publications are located;
7. *Requests* the secretariat to prepare a report assessing experience in the implementation of these guidelines, taking into account, inter alia, the experience gained by Parties included in Annex I to the Convention in using the guidelines and by the secretariat in processing the information reported by Parties included in Annex I to the Convention, for consideration by the Subsidiary Body for Scientific and Technological Advice at its first session in the year 2006.

Annex

**GUIDELINES FOR THE PREPARATION OF NATIONAL COMMUNICATIONS BY PARTIES
INCLUDED IN ANNEX I TO THE CONVENTION, PART I: UNFCCC REPORTING
GUIDELINES ON ANNUAL INVENTORIES**

A. Objectives

1. The objectives of the UNFCCC reporting guidelines on annual inventories are:
 - (a) To assist Parties included in Annex I to the Convention (Annex I Parties)¹ in meeting their commitments under Articles 4 and 12 of the Convention and to assist Annex I Parties to the Kyoto Protocol in preparing to meet commitments under Articles 3, 5 and 7 of the Kyoto Protocol;
 - (b) To facilitate the process of considering annual national inventories, including the preparation of technical analysis and synthesis documentation;
 - (c) To facilitate the process of verification, technical assessment and expert review of the inventory information.

B. Principles and definitions

2. National greenhouse gas inventories, referred to below only as inventories, should be transparent, consistent, comparable, complete and accurate.
3. Inventories should be prepared using comparable methodologies agreed upon by the Conference of the Parties (COP), as indicated in paragraph 9 below.
4. In the context of these UNFCCC reporting guidelines on annual inventories:

Transparency means that the assumptions and methodologies used for an inventory should be clearly explained to facilitate replication and assessment of the inventory by users of the reported information. The transparency of inventories is fundamental to the success of the process for the communication and consideration of information;

Consistency means that an inventory should be internally consistent in all its elements with inventories of other years. An inventory is consistent if the same methodologies are used for the base and all subsequent years and if consistent data sets are used to estimate emissions or removals from sources or sinks. Under certain circumstances referred to in paragraphs 15 and 16, an inventory using different methodologies for different years can be considered to be consistent if it has been recalculated in a transparent manner, in accordance with the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories;²

Comparability means that estimates of emissions and removals reported by Parties in inventories should be comparable among Parties. For this purpose, Parties should use the methodologies and formats agreed by the COP for estimating and reporting inventories. The allocation of different source/sink

¹ Parties included in Annex I to the Convention are referred to as “Parties” in these guidelines.

² Referred to in this document as the “IPCC good practice guidance”. The IPCC is currently developing “Good Practice Guidance for Land Use, Land-Use Change and Forestry”.

categories should follow the split of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories,³ at the level of its summary and sectoral tables;

Completeness means that an inventory covers all sources and sinks, as well as all gases, included in the IPCC Guidelines as well as other existing relevant source/sink categories which are specific to individual Parties and, therefore, may not be included in the IPCC Guidelines. Completeness also means full geographic coverage of sources and sinks of a Party;⁴ and

Accuracy is a relative measure of the exactness of an emission or removal estimate. Estimates should be accurate in the sense that they are systematically neither over nor under true emissions or removals, as far as can be judged, and that uncertainties are reduced as far as practicable. Appropriate methodologies should be used, in accordance with the IPCC good practice guidance, to promote *accuracy* in inventories.

5. In the context of these guidelines, definitions of common terms used in greenhouse gas inventory preparation are those provided in the IPCC good practice guidance.

C. Context

6. These UNFCCC reporting guidelines on annual inventories cover the estimation and reporting of greenhouse gas emissions and removals in both annual inventories and inventories included in national communications, as specified by decision 11/CP.4 and other relevant decisions of the COP.

7. An annual inventory submission shall consist of a national inventory report (NIR) and the common report format (CRF) tables, as described in paragraphs 38 through 43 and 44 through 50, respectively.

D. Base year

8. The year 1990 should be the base year for the estimation and reporting of inventories. According to the provisions of Article 4.6 of the Convention and decisions 9/CP.2 and 11/CP.4, the following Annex I Parties that are undergoing the process of transition to a market economy are allowed to use a base year or a period of years other than 1990, as follows:

Bulgaria:	1988
Hungary:	the average of the years 1985 to 1987
Poland:	1988
Romania:	1989
Slovenia:	1986

E. Methods

Methodology

9. Parties shall use the IPCC Guidelines to estimate and report on anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol. In preparing national inventories of these gases. Parties shall also use the IPCC good practice guidance in order to improve transparency, consistency, comparability, completeness and accuracy.

³ Referred to in this document as the "IPCC Guidelines".

⁴ According to the instrument of ratification, acceptance, approval or accession to the Convention of each Party.

10. In accordance with the IPCC Guidelines, Parties may use different methods (tiers) included in those guidelines, giving priority to those methods which, according to the decision trees in the IPCC good practice guidance, produce more accurate estimates. In accordance with the IPCC Guidelines, Parties may also use national methodologies which they consider better able to reflect their national situation, provided that these methodologies are compatible with the IPCC Guidelines and IPCC good practice guidance and are well documented and scientifically based.

11. For source categories that are determined to be key source categories, in accordance with IPCC good practice guidance and estimated in accordance with the provisions in paragraph 13 below, Parties should make every effort to use a recommended method, in accordance with the corresponding decision trees of the IPCC good practice guidance. Parties should also make every effort to develop and/or select emission factors, and collect and select activity data in accordance with the IPCC good practice guidance.

12. For most source categories, the IPCC Guidelines provide a default methodology which includes default emission factors, and in some cases default activity data references. Furthermore, the IPCC good practice guidance provides updated default emission factors and default activity data for some sources and gases. As the assumptions implicit in these default data, factors and methods may not be appropriate for specific national contexts, it is preferable for Parties to use their own national emission factors and activity data, where available, provided that they are developed in a manner consistent with the IPCC good practice guidance, are considered to be more accurate, and reported transparently. The updated default activity data or emission factors provided in the IPCC good practice guidance should be used, where available, if Parties choose to use default factors or data due to lack of country-specific information.

Key source category determination

13. Parties shall identify their national key source categories for the base year and the latest reported inventory year, as described in the IPCC good practice guidance, using the tier 1 or tier 2 level and trend assessment.

Uncertainties

14. Parties shall quantitatively estimate the uncertainties in the data used for all source and sink categories using at least the tier 1 method, as provided in the IPCC good practice guidance. Alternatively, Parties may also use the tier 2 method in the good practice guidance to address technical limitations in the tier 1 method. Uncertainty in the data used for all source and sink categories should also be qualitatively discussed in a transparent manner in the NIR, in particular for those sources that were identified as key sources.

Recalculations

15. The inventories of an entire time series, including the base year and all subsequent years for which inventories have been reported, should be estimated using the same methodologies, and the underlying activity data and emission factors should be obtained and used in a consistent manner. Recalculations should ensure consistency of the time series and shall be carried out only to improve accuracy and/or completeness. Where the methodology or manner in which underlying activity data and emission factors are gathered has changed, Parties should recalculate inventories for the base and subsequent years. Parties should evaluate the need for recalculations relative to the reasons provided by the IPCC good practice guidance, in particular for key sources. Recalculations should be performed in accordance with IPCC good practice guidance and the general principles set down in these guidelines.

16. In some cases it may not be possible to use the same methods and consistent data sets for all years due to a possible lack of activity data, emission factors or other parameters directly used in the calculation of emission estimates for some historical years, including the base year. In such cases, emissions or removals may need to be recalculated using alternative methods not generally covered by paragraphs 9 through 12. In these instances, Parties should use one of the techniques provided by the IPCC good practice guidance (e.g., overlap, surrogate, interpolation, and extrapolation) to determine the missing values. Parties should document and demonstrate in the NIR that the time series is consistent, wherever such techniques are used.

Quality assurance/quality control (QA/QC)

17. Each Party shall elaborate an inventory QA/QC plan and implement general inventory QC procedures (tier 1)⁵ in accordance with its QA/QC plan following the IPCC good practice guidance. In addition, Parties should apply source category specific QC procedures (tier 2) for key source categories and for those individual source categories in which significant methodological changes and/or data revisions have occurred, in accordance with IPCC good practice guidance. The implementation of tier 2 QC may be more efficiently implemented in conjunction with the evaluation of uncertainties in data sources. In addition, Parties should implement QA procedures by conducting a basic expert peer review (tier 1 QA) of their inventories in accordance with IPCC good practice guidance.

F. Reporting

1. General guidance

Estimates of emissions and removals

18. Article 12.1 (a) of the Convention requires that each Party shall communicate to the COP, through the secretariat, inter alia, a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol. As a minimum requirement, inventories shall contain information on the following greenhouse gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF₆). Parties should report anthropogenic emissions and removals of any other greenhouse gases whose 100-year global warming potential (GWP) values have been identified by the IPCC and adopted by the COP. Parties should also provide information on the following indirect greenhouse gases: carbon monoxide (CO), nitrogen oxides (NO_x) and non-methane volatile organic compounds (NMVOCs), as well as sulphur oxides (SO_x).

19. Greenhouse gas emissions and removals should be presented on a gas-by-gas basis in units of mass with emissions by sources listed separately from removals by sinks, except in cases where it may be technically impossible to separate information on sources and sinks in the areas of land use, land-use change and forestry. For HFCs and PFCs, emissions should be reported for each relevant chemical in the category on a disaggregated basis except in cases where paragraph 27 applies.

20. In addition, consistent with decision 2/CP.3, Parties should report aggregate emissions and removals of greenhouse gases, expressed in CO₂ equivalent terms at summary inventory level⁶, using GWP values provided by the IPCC in its Second Assessment Report, referred to below as 1995 IPCC

⁵ As outlined in table 8.1 of the IPCC good practice guidance.

⁶ CO₂ equivalent emissions should be provided at a level of category disaggregation similar to that specified in table Summary 1.A of the common reporting format.

GWP values, based on the effects of greenhouse gases over a 100-year time horizon. A list of these values is given in table 1 at the end of this document. Table 1 will be amended to include any additional greenhouse gases and their 100-year GWP values, once the GWP values have been adopted by the COP.

21. Consistent with decision 2/CP.3, Parties should report actual emissions of HFCs, PFCs and SF₆, where data are available, providing disaggregated data by chemical (for example, HFC-134a) and source category in units of mass and in CO₂ equivalents. Parties should make every effort to develop the necessary sources of data for reporting actual emissions. For the source categories where the concept of potential emissions applies, and Parties do not yet have the necessary data to calculate actual emissions, Parties should report disaggregated potential emissions. Parties reporting actual emissions should also report potential emissions for the sources where the concept of potential emissions applies, for reasons of transparency and comparability.

22. Any Annex I Party that is a Party to the Kyoto Protocol and that in accordance with Article 3, paragraph 8 of the Kyoto Protocol chooses to use 1995 as its base year for HFCs, PFCs and SF₆ for the purposes of calculating assigned amounts pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol, should indicate this in its NIR and in the documentation boxes of the relevant tables of the CRF. Irrespective of the base year chosen for these gases for the purpose of the Kyoto Protocol, such Parties should report, to the extent that data are available, emission estimates and trends for these gases from 1990 onward, in accordance with the provisions of these guidelines.

23. Parties are strongly encouraged to also report emissions and removals of additional greenhouse gases for which 100-year GWP values are available, but not yet adopted by the COP. These emissions and removals should be reported separately from national totals. The GWP value and reference should be indicated.

24. In accordance with the IPCC Guidelines, international aviation and marine bunker fuel emissions should not be included in national totals but should be reported separately. Parties should make every effort to both apply and report according to the IPCC good practice guidance method for separation between domestic and international emissions. Parties should also report emissions from international aviation and marine bunker fuels as two separate entries in their inventories.

25. Parties should clearly indicate how feedstocks and non-energy use of fuels have been accounted for in the inventory, in the energy or industrial processes sector, in accordance with the IPCC good practice guidance.

26. If Parties account for effects of CO₂ capture from flue gases and subsequent CO₂ storage in their inventory, they should indicate in which source categories such effects are included, and provide transparent documentation of the methodologies used and the resulting effects.

27. Emissions and removals should be reported at the most disaggregated level of each source/sink category, taking into account that a minimum level of aggregation may be required to protect confidential business and military information.

Completeness

28. Where methodological or data gaps in inventories exist, information on these gaps should be presented in a transparent manner. Parties should clearly indicate the sources and sinks not considered in their inventories but which are included in the IPCC Guidelines, and explain the reasons for such exclusion. Similarly, Parties should indicate the parts of their geographical area, if any, not covered by their inventory and explain the reasons for their exclusion. In addition, Parties should use the notation

keys presented below to fill in the blanks in all the tables in the CRF⁷. This approach facilitates assessment of the completeness of an inventory. The notation keys are as follows:

(a) “NO” (not occurring) for activities or processes in a particular source or sink category that do not occur within a country;

(b) “NE” (not estimated) for existing emissions by sources and removals by sinks of greenhouse gases which have not been estimated. Where “NE” is used in an inventory for emissions or removals of CO₂, N₂O, CH₄, HFCs, PFCs, or SF₆, the Party should indicate in both the NIR and the CRF completeness table why emissions or removals have not been estimated;⁸

(c) “NA” (not applicable) for activities in a given source/sink category that do not result in emissions or removals of a specific gas. If categories in the CRF for which “NA” is applicable are shaded, they do not need to be filled in;

(d) “IE” (included elsewhere) for emissions by sources and removals by sinks of greenhouse gases estimated but included elsewhere in the inventory instead of the expected source/sink category. Where “IE” is used in an inventory, the Party should indicate, using the CRF completeness table, where in the inventory the emissions or removals from the displaced source/sink category have been included and the Party should explain such a deviation from the expected category;

(e) “C” (confidential) for emissions by sources and removals by sinks of greenhouse gases which could lead to the disclosure of confidential information, given the provisions of paragraph 27 above.

29. If Parties estimate and report emissions and removals from country-specific sources or sinks or of gases which are not part of the IPCC Guidelines, they should explicitly describe what source/sink categories or gases these are, as well as what methodologies, emission factors and activity data have been used for their estimation and provide the references for these data.

Key sources

30. Parties shall estimate and report the individual and cumulative percentage contributions of emissions from key source categories to their national total, with respect to both emission level and emission trend. The emissions should be expressed in terms of CO₂ equivalents using the methods provided in the IPCC good practice guidance. As indicated in paragraphs 41 and 47, this information should be included in table 7 of the CRF as well as the NIR using tables 7.A1 – 7.A3 of the IPCC good practice guidance adapted to the level of category disaggregation that the Party used for determining its key sources.

Verification

31. In accordance with the IPCC Guidelines, as well as for verification purposes, Parties should compare their national estimates of carbon dioxide emissions from fuel combustion with those estimates obtained using the IPCC reference approach, and report the results of this comparison in the CRF and NIR. Parties are also encouraged to report on any peer review of their inventory conducted nationally.

⁷ If notation keys are used in the NIR they should be consistent with those reported in the CRF.

⁸ Even if emission estimates are considered to be negligible, Parties should either report the emission estimate if calculated or use the notation key “NE”.

Uncertainties

32. Parties shall report, in the NIR, uncertainties estimated as indicated in paragraph 14 above, as well as methods used and underlying assumptions, with the purpose of helping prioritize efforts to improve the accuracy of national inventories in the future and guide decisions on methodological choice. This information should be presented using tables 6.1 and 6.2 of the IPCC good practice guidance. In addition, Parties should indicate in these tables those sources that have been identified as key sources in their inventory. If the methods used to estimate the level of uncertainty depart from the IPCC good practice guidance, these methods should be described.

Recalculations

33. Recalculations of previously submitted estimates of emissions and removals as a result of changes in methodologies, changes in the manner in which emission factors and activity data are obtained and used or the inclusion of new sources or sinks which have existed since the base year but were not previously reported, should be reported for the base year and all subsequent years up to the year in which the recalculations are made.

34. Recalculations should be reported in the NIR, with explanatory information including justification for recalculations, and in the relevant CRF tables. Parties should also provide explanations for those cases in which they have not recalculated an estimate when such a recalculation is called for in the IPCC good practice guidance. Information on the procedures used for performing the recalculations, changes in the calculation methods, emission factors and activity data used and the inclusion of sources or sinks not previously covered, should be reported with an indication of the relevant changes in each source or sink category where these changes have taken place. For key sources, Parties should include this information in the NIR, as indicated in paragraph 41 below.

35. Parties should report any other changes in estimates of emissions and removals, regardless of magnitude, and clearly indicate the reason for the changes compared with previously submitted inventories, e.g., error correction, statistical or editorial changes or reallocation of sources, using the corresponding CRF table, as indicated in paragraph 47 and outlined in the annex to these guidelines.

QA/QC

36. Parties shall report in the NIR on their QA/QC plan and give information on QA/QC procedures already implemented or to be implemented in the future.

Adjustments⁹

37. Inventories are to be reported without adjustments related, for example, to climate variations or trade patterns of electricity. If Parties, in addition, carry out such adjustments to inventory data, they should be reported separately and in a transparent manner, with clear indications of the method followed.

2. National inventory report

38. Parties shall submit to the COP, through the secretariat, an NIR containing detailed and complete information on their inventories. The NIR should ensure transparency and contain sufficiently detailed

⁹ The adjustments referred to here relate, for example, to climate variations or trade patterns of electricity. They do not refer to adjustments under Article 5.2 of the Kyoto Protocol.

information to enable the inventory to be reviewed. This information should cover the entire time series, from the base year¹⁰ to the latest inventory year, and any changes to previously submitted inventories.

39. Each year, an updated NIR shall be electronically submitted in its entirety to the COP, through the secretariat, in accordance with the relevant decisions of the COP; in instances where Parties have produced published hard copy versions of their NIR, they are also encouraged to submit copies to the secretariat.

40. The NIR shall include annual inventory information, submitted in accordance with paragraph 38 above.

41. The NIR should include:

(a) Descriptions, references and sources of information of the specific methodologies, assumptions, emission factors and activity data, as well as the rationale for their selection. It also should include an indication of the level of complexity (IPCC tiers) applied and a description of any national methodology used by the Party, as well as information on anticipated future improvements. For key sources, an explanation should be provided if the recommended methods from the appropriate decision tree in the IPCC good practice guidance are not used. In addition, activity data, emission factors and related information should be documented in accordance with the IPCC good practice guidance.

(b) A description of the national key sources as indicated in paragraph 30,¹¹ including:

- (i) Reference to the key source tables in the CRF;
- (ii) Information on the level of source category disaggregation used and its rationale;
- (iii) Additional information related to the methodology used for identifying key sources;

(c) With regard to possible double counting or non-counting of emissions, an indication in the corresponding sectoral part of the NIR:

- (i) Whether feedstocks and non-energy use of fuels have been accounted for in the inventory, and if so, where they have been accounted for in the energy or industrial processes sector;
- (ii) Whether CO₂ from agricultural soils has been estimated and if so, where it has been accounted for in the agriculture sector (under category 4.D – Agricultural soils) or in the land-use change and forestry (LUCF) sector (category 5.D – CO₂ emissions and removals from soil);
- (iii) Whether emissions of CO₂ corresponding to atmospheric oxidation of CO, NMVOCs and CH₄ emissions from non-combustion and non-biogenic processes, such as solvent use, coal mining and handling, venting and leakages of fossil fuels have been accounted for in the inventory;

¹⁰ According to the provisions of Article 4.6 of the Convention and decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition are allowed to use base years other than 1990, as mentioned in paragraph 8 above.

¹¹ The secretariat will also perform a standardized key source determination for all Parties, based on table 7.1 of the IPCC good practice guidance. Parties may also use this approach if it is consistent with the way they prepare their inventories.

- (iv) Information on source or sink categories excluded or potentially excluded, including efforts to develop estimates for future submissions;
- (d) Background data used to estimate emissions and removals from the LUCF sector to enhance transparency;¹²
- (e) Information on how the effects of CO₂ capture from flue gases and subsequent CO₂ storage are accounted for in the inventory;
- (f) Information on uncertainties, as requested in paragraph 32 above;
- (g) Information on any recalculations related to previously submitted inventory data, as requested in paragraphs 33 to 35 above, including changes in methodologies, sources of information and assumptions, as well as recalculations in response to the review process;
- (h) Information on changes from previous years, not related to recalculations, including the changes in methodologies, sources of information and assumptions, as well as changes in response to the review process;
- (i) Information on QA/QC as requested in paragraph 36 above, describing the QA/QC plan, and the QA/QC activities implemented for the entire inventory as well as for individual source categories, in particular key sources, and the entire inventory performed internally, as well as on the external reviews conducted, if any. Key findings on the quality of the input data, methods, processing and archiving and how they have been addressed, should be described;
- (j) A description of the institutional arrangements for inventory preparation.

42. If any of the information required under subparagraphs (a) to (h) above is provided in detail in the CRF, Parties should indicate in the NIR where in the CRF this information is provided.

43. The NIR should be reported in accordance with the outline contained in the appendix to these guidelines, ensuring that all information requested in paragraph 41 above is included.

3. Common reporting format

44. The common reporting format is designed to ensure that Parties report quantitative data in a standardized format and to facilitate comparison of inventory data and trends among Parties. Explanation of information of a qualitative character should mainly be provided in the NIR rather than in the CRF tables. Such explanatory information should be cross-referenced to the specific section of the NIR.

45. Parties shall submit annually to the COP, through the secretariat, the information required in the CRF as contained in the annex to these guidelines. This information shall be electronically submitted on an annual basis in its entirety to the COP, through the secretariat, in accordance with the relevant decisions of the COP.

46. The CRF is a standardized format for reporting estimates of greenhouse gas emissions and removals and other relevant information. The CRF allows for the improved handling of electronic

¹² The SBSTA may wish to consider this issue when guidance on good practice for the land use, land-use change and forestry sector has been completed by the IPCC and, as appropriate, expand this subparagraph in any subsequent revisions of these guidelines.

submissions and facilitates the processing of inventory information and the preparation of useful technical analysis and synthesis documentation.

47. The CRF consists of:

- (a) Summary, sectoral and trend tables for all greenhouse gas emissions and removals;
- (b) Sectoral background data tables for reporting implied emission factors¹³ and activity data, including:
 - (i) IPCC worksheet 1-1 containing estimates of CO₂ emissions from fuel combustion using the IPCC reference approach and a table for comparing estimates under this reference approach with estimates under the sectoral approach, as well as providing explanations of any significant differences;¹⁴
 - (ii) Tables for reporting fossil fuel consumption for non-energy feedstocks, international bunkers and multilateral operations;
- (c) Tables for reporting, inter alia, key source categories, recalculations and completeness of the inventory.

48. The CRF should be reported in accordance with the tables included in the annex to these guidelines, ensuring that all information requested in paragraph 47 above is included. In completing these tables Parties should:

- (a) Provide the full CRF for the latest inventory year and for those years for which any change in any sector has been made. For years where no changes are made, resubmission of full CRF tables is not necessary, but a reference should be made to the inventory submission in which the unchanged data were reported originally. Parties should ensure that a full and time-series consistent set of CRF tables is annually available for the entire time series from the base year onwards;
- (b) Provide the CRF trend tables covering inventory years for the entire time series in one submission only, that is, in the CRF for the last inventory year;
- (c) Provide completeness tables in one submission only if the information applies to all years. If the information in these tables differs for each reported year, then either the tables or information on the specific changes must be provided for each year in the CRF;
- (d) Use the documentation boxes provided at the foot of the sectoral report and background data tables to provide cross-references to detailed explanations in the NIR, or any other information, as specified in those boxes.

49. Parties should provide the information requested in the additional information boxes. Where the information called for is inappropriate because of the methodological tier used by the Party, the corresponding cells should be completed using the notation key "NA". In such cases, the Parties should cross-reference in the documentation box the relevant section in the NIR where equivalent information can be found.

¹³ The sectoral background tables were designed to allow calculation of implied emission factors. These are top-down ratios between a Party's emission estimates and activity data at the level of aggregation given by the tables. The implied emission factors are intended solely for purposes of data comparison. They will not necessarily be the emission factors actually used in the original emission estimate, unless this was a simple multiplication based on the same aggregate activity data used to calculate the implied emission factor.

¹⁴ Detailed explanations should be included in the NIR.

50. Parties should use the notation keys, as specified in paragraph 28 above, in all tables of the CRF, to fill in the cells where no quantitative data are directly entered. Using the notation keys in this way facilitates the assessment of the completeness of an inventory. Specific guidance is provided on how notation keys should be used in each CRF table where qualitative information is required.

G. Record keeping

51. Parties should gather and archive all relevant inventory information for each year, including all disaggregated emission factors, activity data and documentation on how these factors and data were generated, including expert judgement where appropriate, and how they have been aggregated for reporting in the inventory. This information should allow reconstruction of the inventory by the expert review teams, inter alia. Inventory information should be archived from the base year and should include corresponding data on the recalculations applied. The “paper trail”, which can include spreadsheets or databases used to compile inventory data, should enable estimates of emissions and removals to be traced back to the original disaggregated emission factors and activity data. Also, relevant supporting documentation related to QA/QC implementation, uncertainty evaluation, or key source analyses should be kept on file. This information should also facilitate the process of clarifying inventory data in a timely manner when the secretariat prepares annual compilations of inventories or assesses methodological issues. Parties are encouraged to collect and gather the information in a single national inventory facility or, at least, to keep the number of facilities to a minimum.

H. Systematic updating of the guidelines

52. These UNFCCC reporting guidelines on annual inventories shall be reviewed and revised, as appropriate, in accordance with decisions of the COP on this matter.

I. Language

53. The national inventory report shall be submitted in one of the official languages of the United Nations. Parties are also encouraged to submit, where relevant, a translation of the national inventory report into English.

Table 1. 1995 IPCC global warming potential (GWP) values¹⁵ based on the effects of greenhouse gases over a 100-year time horizon.

Greenhouse gas	Chemical formula	1995 IPCC GWP
Carbon dioxide	CO ₂	1
Methane	CH ₄	21
Nitrous oxide	N ₂ O	310
Hydrofluorocarbons (HFCs)		
HFC-23	CHF ₃	11 700
HFC-32	CH ₂ F ₂	650
HFC-41	CH ₃ F	150
HFC-43-10mee	C ₅ H ₂ F ₁₀	1 300
HFC-125	C ₂ HF ₅	2 800
HFC-134	C ₂ H ₂ F ₄ (CHF ₂ CHF ₂)	1 000
HFC-134a	C ₂ H ₂ F ₂ (CH ₂ FCF ₃)	1 300
HFC-152a	C ₂ H ₄ F ₂ (CH ₃ CHF ₂)	140
HFC-143	C ₂ H ₃ F ₃ (CHF ₂ CH ₂ F)	300
HFC-143a	C ₂ H ₃ F ₃ (CF ₃ CH ₃)	3 800
HFC-227ea	C ₃ HF ₇	2 900
HFC-236fa	C ₃ H ₂ F ₆	6 300
HFC-254ca	C ₃ H ₃ F ₅	560
Perfluorocarbons		
Perfluoromethane	CF ₄	6 500
Perfluoroethane	C ₂ F ₆	9 200
Perfluoropropane	C ₃ F ₈	7 000
Perfluorobutane	C ₄ F ₁₀	7 000
Perfluorocyclobutane	c-C ₄ F ₈	8 700
Perfluoropentane	C ₅ F ₁₂	7 500
Perfluorohexane	C ₆ F ₁₄	7 400
Sulphur hexafluoride	SF ₆	23 900

¹⁵ As provided by the IPCC in its Second Assessment Report.

Appendix

STRUCTURE OF NATIONAL INVENTORY REPORT (NIR)

EXECUTIVE SUMMARY

- ES.1. Background information on greenhouse gas inventories and climate change (e.g., as it pertains to the national context, to provide information to the general public)
- ES.2. Summary of national emission and removal related trends
- ES.3. Overview of source and sink category emission estimates and trends
- ES.4. Other information (e.g., indirect greenhouse gases)

Chapter 1: INTRODUCTION

- 1.1. Background information on greenhouse gas inventories and climate change (e.g., as it pertains to the national context, to provide information to the general public)
- 1.2. A description of the institutional arrangement for inventory preparation
- 1.3. Brief description of the process of inventory preparation (e.g., data collection, data processing, data storage)
- 1.4. Brief general description of methodologies and data sources used
- 1.5. Brief description of key source categories
- 1.6. Information on the QA/QC plan including verification and treatment of confidentiality issues where relevant
- 1.7. General uncertainty evaluation, including data on the overall uncertainty for the inventory totals
- 1.8. General assessment of the completeness (with reference to annex 5 of the structure of the NIR)

Chapter 2: TRENDS IN GREENHOUSE GAS EMISSIONS

Information should be provided in this chapter that provides an overview of emission trends, however, it is not necessary to repeat information that is provided in the sector chapters and in the CRF trend tables.

- 2.1. Description and interpretation of emission trends for aggregated greenhouse gas emissions
- 2.2. Description and interpretation of emission trends by gas
- 2.3. Description and interpretation of emission trends by source
- 2.4. Description and interpretation of emission trends for indirect greenhouse gases and SO₂

Chapters 3-9: (e.g. SECTOR NAME (CRF sector No))

The structure outlined below should be followed in each of the following sectoral chapters. The information should be reported following the IPCC sectors.

- 3.1. Overview of sector (e.g., quantitative overview and description)
- 3.2. *Source category* (CRF source category No)

For each IPCC source category (i.e., at the level of the table Summary 1.A of the CRF, or the level at which IPCC methods are described, or at the level that the Party estimates its greenhouse gas emissions) the following information should be provided:

- 3.2.1. Source category description (e.g., characteristics of sources)
- 3.2.2. Methodological issues (e.g., choice of methods/activity data/emission factors, assumptions, parameters and conventions underlying the emission and removal estimates – the rationale for their selection, any specific methodological issues (e.g. description of national methods))
- 3.2.3. Uncertainties and time-series consistency
- 3.2.4. Source-specific QA/QC and verification, if applicable
- 3.2.5. Source-specific recalculations, if applicable, including changes made in response to the review process
- 3.2.6. Source-specific planned improvements, if applicable (e.g., methodologies, activity data, emission factors, etc.), including those in response to the review process

Parties may report some of the information requested above in an aggregate form for some/several source categories if the same methodology, activity data and/or emission factors are used, in order to avoid repetition of information.

For key source categories, the information should be detailed in order to enable a thorough review of the inventory.

Chapter 3: ENERGY (CRF sector 1)

In addition, the energy information should include the following:

Fuel combustion (CRF 1.A), including detailed information on:

- Comparison of the sectoral approach with the reference approach
- International bunker fuels
- Feedstocks and non-energy use of fuels
- CO₂ capture from flue gases and subsequent CO₂ storage
- Country-specific issues

Fugitive emissions from solid fuels and oil and natural gas (CRF 1.B)

Chapter 4: INDUSTRIAL PROCESSES (CRF sector 2)

Chapter 5: SOLVENT AND OTHER PRODUCT USE (CRF sector 3)

Chapter 6: AGRICULTURE (CRF sector 4)

Chapter 7: LUCF (CRF sector 5)

Chapter 8: WASTE (CRF sector 6)

Chapter 9: OTHER (CRF sector 7) (if applicable)

In addition, information previously included in the additional information and the documentation boxes of the CRF version for the trial period, should be included and expanded in the NIR, where relevant, as specified in the appendix to this proposed structure.

Chapter 10: RECALCULATIONS AND IMPROVEMENTS

Information should be provided in this chapter that provides an overview of recalculations and improvements made to the inventory, however, it is not necessary to repeat information that is provided in the sector chapters, specifically the source specific information to be provided, and in particular, Parties should cross-reference information provided in the sector chapters.

- 10.1. Explanations and justifications for recalculations
- 10.2. Implications for emission levels
- 10.3. Implications for emission trends, including time series consistency
- 10.4. Recalculations, including in response to the review process, and planned improvements to the inventory (e.g., institutional arrangements, inventory preparation)

REFERENCES

ANNEXES TO THE NATIONAL INVENTORY REPORT

Annex 1: Key sources

- Description of methodology used for identifying key sources
- Reference to the key source tables in the CRF
- Information on the level of disaggregation

Annex 2: Detailed discussion of methodology and data for estimating CO₂ emissions from fossil fuel combustion

Annex 3: Other detailed methodological descriptions for individual source or sink categories (where relevant)

Annex 4: CO₂ reference approach and comparison with sectoral approach, and relevant information on the national energy balance

Annex 5: Assessment of completeness and (potential) sources and sinks of greenhouse gas emissions and removals excluded

Annex 6: Additional information to be considered as part of the NIR submission (where relevant) or other useful reference information

Annex 7: Other annexes - (Any other relevant information – optional)

Appendix to the structure of the NIR

**ADDITIONAL GUIDANCE ON SECTORAL REPORTING TO BE INCLUDED IN THE
CORRESPONDING SECTION OF THE NIR¹⁶**

This appendix provides guidance on additional information that Parties could include in their NIR in order to facilitate the review of the inventory. This list is not exhaustive. Additional information may be included in the NIR, depending on the Party's national approach for estimating greenhouse gas emissions and removals.

Energy

Fuel combustion

More specific information than that required in CRF table 1.A(a) could be provided, e.g.,

- autoproduction of electricity;
- urban heating (in manufacturing industries, commercial and residential sectors).

Fugitive fuel emissions

Coal mining:

More specific information than that required in CRF table 1.B.1 could be provided, e.g.

- number of active underground mines;
- number of mines with drainage (recovery) systems.

Oil and natural gas:

More specific information than that required in CRF table 1.B.2 could be provided, e.g.

- pipeline length
- number of oil wells
- number of gas wells
- gas throughput¹⁷
- oil throughput¹⁷

Industrial processes

Metal production

More specific information than is required in CRF table 2(I).A-G could be provided, e.g.,

- data on virgin and recycled steel production.

¹⁶ Most of the requirements included in this list were previously reported in the additional information boxes of the CRF tables. As the information is not used directly for the estimation of emissions, participants at the expert meeting recommended that they should be reported in the NIR instead. Some requirements included in this list were not previously covered in the CRF; they emerged as a result of the expert meeting and comments provided by Parties.

¹⁷ In the context of oil and gas production, throughput is a measure of the total production, such as barrels per day of oil, or cubic metres of gas per year. Specify the units of the reported values. Take into account that these values should be consistent with the activity data reported under production in table 1.B.2 of the CRF.

Potential emissions of halocarbons and SF₆

- In CRF table 2(II)s2, reporting of “production” refers to production of new chemicals. Recycled substances could be included in that table, but it should be ensured that double counting of emissions is avoided. Relevant explanations should be provided in the NIR.

PFCs and SF₆ from metal production / Production of halocarbons and SF₆

- The type of activity data used is to be specified in CRF tables 2(II).C-E (under column “description”). Where applying tier 1b (for 2.C Metal production), tier 2 (for 2.E Production of halocarbons and SF₆) and country-specific methods, any other relevant activity data used should be specified.

Consumption of HFCs, PFCs and SF₆

With regard to activity data reported in CRF table 2(II).F (“Amount of fluid remaining in products at decommissioning”), Parties should provide in the NIR information on the amount of the chemical recovered (recovery efficiency) and other relevant information used in the emission estimation.

CRF table 2.(II).F provides for reporting of the activity data and emission factors used to calculate actual emissions from consumption of halocarbons and SF₆ using the “bottom-up approach” (based on the total stock of equipment and estimated emission rates from this equipment). Some Parties may prefer to estimate their actual emissions following the alternative “top-down approach” (based on annual sales of equipment and/or gas). Those Parties should provide the activity data used in that CRF table and provide any other relevant information in the NIR. Data these Parties should provide include:

- the amount of fluid used to fill new products,
- the amount of fluid used to service existing products,
- the amount of fluid originally used to fill retiring products (the total nameplate capacity of retiring products),
- the product lifetime,
- the growth rate of product sales, if this has been used to calculate the amount of fluid originally used to fill retiring products.

Alternatively, Parties may provide alternative formats with equivalent information.

Solvents and other product use

- The IPCC Guidelines do not provide methodologies for the calculation of emissions of N₂O from solvent and other product use. If reporting such data in the CRF, Parties should provide additional information (activity data and emission factors) used to make these estimates in the NIR.

Agriculture

Cross-cutting

Parties should provide livestock population data in CRF table 4.A. Any further disaggregation of these data, e.g. for regions, for type (according to the classification recommended in the IPCC good practice guidance) could be provided in the NIR, where relevant. Consistent livestock population data should be used in the relevant CRF tables to estimate CH₄ emissions from enteric fermentation, CH₄ and N₂O

emissions from manure management, N₂O emissions from soils, and N₂O emissions associated with manure production and use, as well as emissions from the use of manure as fuel and sewage-related emissions reported in the waste sector.

Enteric fermentation

More specific information than is required in CRF table 4.A could be provided, e.g.,

- Parameters relevant to the application of good practice guidance.

Manure management

More specific information than is required in CRF tables 4.B(a) and 4.B(b) could be provided, e.g.,

- Parameters relevant to the application of good practice guidance;
- Information required in the additional information table may not be directly applicable to country-specific methods developed for methane conversion factor (MCF) calculations. If relevant data can not be provided in the additional information box, information on how the MCF are derived should be described in the NIR.

Rice cultivation

More specific information than is required in CRF table 4.C could be provided, e.g.,

- When disaggregating by more than one region within a country and/or by growing season, provide additional information on disaggregation and related data in the NIR. Where available, provide activity data and scaling factors by soil type and rice cultivar in the NIR.

Agricultural soils

More specific information than is required in CRF table 4.D could be provided, e.g.,

- The IPCC Guidelines do not provide methodologies for the calculation of CH₄ emissions or removals by agricultural soils. If reporting such data, Parties should provide in the NIR additional information (activity data and emission factors) used to make these estimates;
- Parties which choose to account for CO₂ emissions and removals from agricultural soils under the agriculture sector (4.D Agricultural soils) should report background information on CO₂ emissions and removals estimates from agricultural soils (activity data, emissions factors) in the NIR;
- In addition to the data required in the additional information box of table 4.D, disaggregated values for Frac_{GRAZ} according to animal type, and for Frac_{BURN} according to crop types, should be provided in the NIR.

Prescribed burning of savannas and field burning of agricultural residues

More specific information than is required in CRF tables 4.E and 4.F could be provided, e.g.,

- The IPCC Guidelines do not provide methodologies for the calculation of CO₂ emissions from savanna burning or agricultural residues burning. If reporting such data, Parties should provide in the NIR additional information (activity data and emission factors) used to make these estimates.

Waste

Solid waste disposal and waste incineration

More specific information than is required in CRF tables 6.A and 6.C could be provided, e.g.,

- All relevant information used in the calculation should be provided in the NIR, if it not already included in the additional information box of the CRF.
- Composition of landfilled waste (%), according to paper and paperboard, food and garden waste, plastics, glass, textiles, other (specify according to inert or organic waste, respectively)
- Fraction of wastes recycled
- Fraction of wastes incinerated

- Number of solid waste disposal sites recovering CH₄

Waste-water handling

More specific information than is required in CRF table 6.B could be provided, e.g.,

- With regard to data on N₂O from waste-water handling to be reported in CRF table 6.B, Parties using other methods for estimation of N₂O emissions from human sewage or waste-water treatment should provide in the NIR corresponding information on methods, activity data and emission factors used.

CRF TABLES¹⁸

Notes on the common reporting format

1. The common reporting format (CRF) is an integral part of the national inventory submission. It is designed to ensure that Parties report quantitative data in a standardized format, and to facilitate the comparison of inventory data across Parties. Details regarding any information of a non-quantitative character should be provided in the NIR.
2. The information provided in the CRF is aimed at enhancing the comparability and transparency of inventories by facilitating, inter alia, activity data and implied emission factor (IEF) cross-comparisons among Parties, and easy identification of possible mistakes, misunderstandings and omissions in the inventories.
3. As stated in these reporting guidelines, the CRF consists of summary report and sectoral report tables from the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC Guidelines) plus newly developed sectoral background data tables and other tables that are consistent with the IPCC Guidelines and the IPCC good practice guidance.
4. Some sectoral background tables call for the calculation of IEFs. These are top-down ratios between the Party's emissions estimate and aggregate activity data. The IEF are intended solely for purposes of comparison. They will not necessarily be the emission factors actually used in the original emissions estimate, unless of course this was a simple multiplication based on the same aggregate activity data used to calculate the implied emission factor.
5. Consistent with the IPCC Guidelines, memo items, such as emissions estimates from international marine and aviation bunker fuels, CO₂ emissions from biomass and emissions from multilateral operations, should be reported in the appropriate tables, but not included in the national totals.
6. Parties should use the documentation boxes at the foot of the tables to provide specific references to the relevant sections of the NIR where full details for a given sector/source category are to be provided.
7. Parties should fill in all the cells calling for emissions or removals estimates, activity data, or emission factors. Notation keys, as described in paragraph 28 of the reporting guidelines, should be used where data have not been entered.
8. In the sectoral background tables, below the source category "Other", an empty row indicates that country-specific source categories may be added. These source categories will automatically be included in the sectoral report tables.
9. Parties should complete the data in the additional information boxes. Where the information called for is inappropriate because of the methodological tier used by the Party, the corresponding cells should be completed using the indicator "NA".
10. Table 5 (the land-use change and forestry sectoral report) should be completed by Parties. The corresponding sectoral background tables 5.A-D follow the IPCC Guidelines and should be completed by

¹⁸ When 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 adopted by the COP and issued as a final document, this part will constitute the annex to these guidelines.

Parties that use IPCC default methods. Parties not using the IPCC default methods are encouraged to provide background data and descriptions for the methodologies used to estimate emissions/removals from the LUCF sector in the NIR in order to enhance transparency. Alternative formats for tables 5.A-D will be considered after the IPCC has developed the good practice guidance for the LULUCF sector.

11. Neither the order nor the notations of the columns, rows or cells should be changed in the tables as this will complicate data compilation. Any additions to the existing disaggregation of source and sink categories should be provided under “Other”, if appropriate.

12. To simplify the layout of the tables and indicate clearly the specific reporting requirements for each table, only those cells that require entries by Parties have been left blank. Slight shading in cells indicates that they are expected to be filled in by software to be provided by the secretariat. However, Parties that choose not to use any software for completing the CRF would have to provide entries in those cells as well.

13. As in the current CRF, dark shading has been used in those cells that are not expected to contain any information.

PROPOSED CHANGES TO THE TABLES OF THE COMMON REPORTING FORMAT

The CRF tables have not been reproduced here, however, a list of the changes to the CRF tables as compared to those proposed in document FCCC/SBSTA/2002/2/Add.3 has been provided below.

General

Footnotes

All footnotes should be included in all sheets pertaining to a given table. If space is limited, a reference to the relevant footnotes on the sheet where the footnote first appears may be made.

Documentation boxes

The general text requesting cross-references to the NIR will be modified as follows:

Parties should provide detailed explanations on the *energy* sector in section x/y¹⁹ of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and further details are needed to understand the content of this table.

¹⁹ Reference to the specific NIR section is made.

All references to the NIR given in the documentation boxes will be updated in accordance with the revised structure of the NIR.

Table-specific changes

Table 1

The wording of the third sentence of the footnote (1) would be replaced with:

“Amounts of biomass used as fuel are included in the national energy consumption but the corresponding CO₂ emissions are not included in the national total as it is assumed that the biomass is produced in a sustainable manner. If the biomass is harvested at an unsustainable rate, net CO₂ emissions are accounted for as a loss of biomass stocks in the land-use change and forestry sector.”

Sheet 2: Footnote reference (1) in ‘5. Other’ will be removed.

Table 1.A (a)

Sheet 2: The text in the row below ‘f. Other’ will be placed in a footnote.

Sheet 3: ‘Other fuels’ in sheet 3 will be inserted for railways and navigation.

Table 1.A (c)

Table to be modified as follows: insert column in which Parties would enter data for energy consumption from the reference approach corrected for feedstocks and non-energy use of fuels, and a column to show the corresponding percentage differences in energy consumption from the two approaches.

Table 1.B.1

The heading under “emissions” currently reading “net emissions” will be modified to read “emissions”.

Footnote (1): Deletion of the last word ‘respectively’.

Footnote (3): The word “net” would be removed.

Table 1.B.2

Footnote (1): Unit ‘bill_ft^3_yr’ to be removed.

The cell for activity data for 1.B.2.b.v would be shaded (light shading indicating automated sum by software) in the same manner as the corresponding cells for emissions estimates.

Table 1.C

'Marine navigation' to be modified to read 'Marine bunkers'.

Additional information box: the word "allocation" to be replaced with "distribution".

Table 2(I)

Sheet 2, F.6, ODS will be spelled out to read "ozone-depleting substances" (alternatively it may be spelled out in a footnote depending on availability of space in the tables).

Table 2 (I).A-G

The columns related to emissions will have the following headings: "Emissions" and "Recovery".

Footnote (3): remove word "net".

Shadings of cells for CO₂ emissions from adipic acid production (chemical industry) and CH₄ emissions from steel (metal production) to be removed (and in any other related table).

Table 2(II)

The column headings 'Other HFCs' and 'Other PFCs' would be modified to read: 'Unspecified mix of listed HFCs' and 'Unspecified mix of listed PFCs', respectively.

Sheet 2: line 2(a) F.6: ODS will be spelled out to read "ozone-depleting substances" (alternatively it may be spelled out in a footnote depending on availability of space in the tables).

In sheet 2, the second note in the documentation box would be deleted.

Table 2(II).C, E

The columns related to emissions will have the following headings: "Emissions" and "Recovery".

Footnotes 2 and 3: word "net" removed.

Table 3

The note would be rephrased to say that NMVOC should be converted to CO₂ equivalent and added to the CO₂ column.

Table 4, sheet 2

Documentation box: the specific requirement to provide a reference to the NIR regarding background information on precursor gas estimates has been removed.

Table 4.A

Footnote (1) deleted; instead the text of footnote (1) to be included in the documentation box.

Table 4.C

Footnote (3) will be expanded to indicate that dry or wet weight should be specified in the documentation box.

Table 4.D

The activity “*Nitrogen fixed by N-fixing crops cultivated annually*” will be changed to “*Nitrogen fixed by N-fixing crops*”.

Additional information: footnote (a) to be redrafted: “Use the definitions for fractions as specified in the”.

Additional information: “Other (Please specify)” will be replaced with “Other fractions (please specify)”.

Table 6.A

The columns related to CH₄ emissions will have the following headings: “Emissions” and “Recovery”.

Summary 1.A

Sheet 2, footnote (4): “D. Agricultural Soils” to be replaced with “4.D Agricultural soils”, and “Land-Use Change and Forestry sector under D” to be replaced with “Land-use change and forestry sector under 5.D”.

Sheet 2, footnote (5): “uptake” to be replaced with “removals”.

Sheet 2: no separate columns under CO₂ emissions/removals for showing the footnotes will be shown (the footnotes will however be kept).

Sheet 3: *The wording of the third sentence of the footnote (8) would be replaced with:*

“Amounts of biomass used as fuel are included in the national energy consumption but the corresponding CO₂ emissions are not included in the national total as it is assumed that the biomass is produced in a sustainable manner. If the biomass is harvested at an unsustainable rate, net CO₂ emissions are accounted for as a loss of biomass stocks in the land-use change and forestry sector.”

Summary 1.B

Include or refer to footnote (8) as in Summary 1.A.

Summary 2

Include or refer to footnote (8) as in Summary 1.A.

Summary 3

Footnote (1): Notation “C” for CORINAIR to be replaced with “CR”.

Additional notation “OTH” for other. A note indicating that the use of “OTH” should be specified in the documentation box will be included.

Table 7(a)

The table has been simplified. It would show the following column headings: “Key sources”, “Gas”, “Criteria used for key source identification” (split into three columns: Q for qualitative assessment, L for level assessment, and T for trend assessment), and “Comments”. The following note is given below the table: “For estimating key sources, Parties may choose the disaggregation level presented as an example in table 7.1 of the IPCC good practice guidance (page 7.6), the level used in Summary 1.A of the CRF or any other disaggregation level that the Party used to determine its key sources”.

Table 7(b)

Table removed.

Table 8 (b)

“Replacement” is replaced with “reallocation” (6th column heading).

Table 10, all sheets

Include additional column to show the percentage change in emissions between the year 1990²⁰ and the latest year for each individual source category.

Table 10, sheet 5

First part of the table: The first two lines under “Greenhouse gas” modified to read: “CO₂ emissions including net CO₂ from LUCF” and “CO₂ emissions excluding net CO₂ from LUCF”, respectively. (This change would also apply to sheet 1 of table 10).

The second part of the table: Insert a line at the bottom of the table to show the total by sector. The correspond heading line would read: “Total (including LUCF)”. The corresponding footnote (8) would be modified to read: “Includes net CO₂, CH₄ and N₂O from LUCF.”

²⁰ Or base year other than 1990 for some EIT Parties, in accordance with decisions 9/CP.2 and 11/CP.4.