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WORKSHOP ON ISSUES RELATED TO ARTICLES 5, 7 AND 8 OF THE KYOTO PROTOCOL

Bonn, 14-16 March 2000

DRAFT GUIDELINES FOR NATIONAL SYSTEMS UNDER ARTICLE 5.1 OF THE KYOTO PROTOCOL

Working paper

CONTENTS

I. INTRODUCTION

A. Mandate

1. The Kyoto Protocol states in Article 5.1 that each Party included in Annex I shall have in place, no later than one year prior to the start of the first commitment period, a national system for the estimation of anthropogenic emissions by sinks of all greenhouse gas not controlled by the Montreal Protocol. Guidelines for such national systems [...] shall be decided upon by the Conference of the Parties serving as the meeting of the Parties of the Kyoto Protocol (COP/MoP) at its first session.

2. The Conference of the Parties (COP), at its fourth session, adopted decision 8/CP.4 which decided to prepare guidelines for national systems under Article 5.1 with a view to completion by COP 6 (FCCC/CP/1998/16/Add.1), with the purpose of recommending their adoption by the first session of the COP/MoP.

3. The subsidiary bodies, at their tenth sessions, endorsed the work programme on methodological issues related to Articles 5, 7 and 8 of the Kyoto Protocol (FCCC/SB/1999/2). The preparation of guidelines for national systems for the estimation of anthropogenic GHG emissions by sources and removals by sinks under Article 5.1 of the Kyoto Protocol, referred to below as guidelines for national systems, is an integral part of the work programme.

4. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its tenth session, requested the secretariat to organize a workshop on national systems and issues relating to adjustments, referred to in Article 5 of the Kyoto Protocol, before its twelfth session (FCCC/SBSTA/1999/6). The SBSTA, at its eleventh session, requested the secretariat to prepare documentation for consideration at the above-mentioned workshop on the following topics, among others (FCCC/SBSTA/1999/14):

(a) The experience of Annex I Parties with existing national systems for preparing greenhouse gas inventories;

(b) An initial draft of guidelines for national systems under Article 5.1 of the Kyoto Protocol.

5. The SBSTA also requested the secretariat to provide a report on the workshop and a second draft of the guidelines under Article 5.1 [...], taking into consideration information from the workshop, for consideration by the SBSTA at its twelfth session.

6. The SBSTA, at its eleventh session, also took note of the information provided by Parties related to Article 5 of the Kyoto Protocol (see FCCC/SBSTA/1999/MISC.9 and Add.1). It agreed to consider the basic elements of national systems listed in the annex I to the report of the eleventh session of the SBSTA as the basis for further work (FCCC/SBSTA/1999/14).

7. The SBSTA also took note of the information provided by a representative of the Intergovernmental Panel on Climate Change (IPCC) on its ongoing work related to good practice in national inventory preparation, including managing uncertainty. It noted that the application of good practices in the use of the IPCC 1996 Revised Guidelines may improve the quality of national greenhouse gas inventories and that some elements of good practices may also be considered for the preparation of guidelines under Articles 5, 7 and 8 of the Protocol. The SBSTA noted that a report on these issues will be provided by the IPCC for consideration at its twelfth session.[1]

B. Scope

8. This paper contains the initial draft of the guidelines requested to be prepared in paragraph 4 (b) above. The secretariat hopes that this paper will facilitate the consideration of the technical and methodological issues relevant to the guidelines for national systems under Article 5.1 of the Kyoto Protocol by experts and representatives from Parties who will attend a SBSTA workshop, to be held in Bonn, from 14 to 16 March 2000. The initial draft of the guidelines will be revised after the workshop taking into account its outcome and views from Parties. The secretariat will prepare a second draft of the guidelines and will made it available to Parties, as requested in paragraph 5 above, for consideration by the SBSTA, at its twelfth session, including the planned pre-sessional period of informal consultations.

C. Possible action by participants attending the workshop

9. Participants may wish to consider the information in this paper and to endorse or modify its approach and/or substantive elements. Participants are expected to provide their views on the methodological and technical aspects of the draft guidelines, such as views on how the draft guidelines were structured, what they should include, the level of detail, coverage, other possible functions to be included, the adequacy of the information for ensuring compliance with Article 5.1 and possible linkages with other provisions of the Protocol. Annex II to this paper contains an outline for facilitating the consideration of such methodological and technical aspects during the workshop.

10. Participants may wish to provide comments on the text of the initial draft guidelines during the workshop, however the workshop is not a forum for negotiations. The information exchanged at the workshop may also be useful for Parties when preparing their views on issues related to Articles 5, 7 and 8 to be submitted by 15 April 2000, as invited by the SBSTA at its eleventh session.

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[1] A draft of the IPCC Guidance and Uncertainty Management in National Greenhouse Gas Inventories was sent by the IPCC to countries for a joint expert-government review on 17 December 1999. It is expected that the XVI Plenary of the IPCC, to be held from 1 to 8 May 2000, will consider and adopt a final version of the guidance.

D. Approach

11. For the purpose of preparing the draft guidelines contained in annex I to this paper, the secretariat drew upon on four sources of information: (a) the basic elements on national systems agreed upon by Parties at SBSTA 11; (b) the draft of the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, referred to below as the IPCC good practice guidance;[2] (c) notes by the secretariat on the experience of Parties with existing national systems used by Parties to prepare national GHG inventories;[3] and (d) views from Parties on national systems, adjustments and guidelines under 5, 7 and 8 of the Kyoto Protocol, contained in document FCCC/SBSTA/2000/MISC.1.

12. The draft guidelines were prepared to clearly differentiate between the mandatory and desirable functions to be performed by the national systems. This is intended to identify the obligations of Parties under Article 5.1 of the Kyoto Protocol, particularly for the first commitment period.

13. The draft guidelines were prepared in a function-oriented way to ensure the quality and reliability of the estimation of the GHG emissions by sources and removals by sinks to be performed by different national systems. The starting premises were (a) that nationals circumstances resulting from the existing differences in institutional structure and organization, as well as approaches to preparing national GHG inventories should not negatively affect the performance of the functions by the national systems; and (b) that these functions should, at least, ensure an adequate level of quality in the estimation of GHG emissions by sources and removals by sinks.

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[2] The definitions used in these draft guidelines on national systems which originate from the IPCC good practice guidance will be updated once the IPCC good practice guidance is completed. Also any substantive change resulting from the process of approval of the report by the IPCC will be properly reflected in further versions of these draft guidelines on national systems.

[3] See working paper No.1 "Experience with existing national systems". Also see the report of the secretariat FCCC/SBSTA/1999/INF.1: "Report on the workshop on the new UNFCCC reporting guidelines on annual inventories and options to address challenges facing Annex I Parties with economies in transition in preparing greenhouse gas inventories", which address the special needs of EIT countries for preparing national GHG inventories.

14. The draft guidelines for national systems are built in part on the guidelines adopted under the Convention, namely 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 and the Guidelines for the Technical Review of Inventories adopted by the fifth Conference of the Parties (FCCC/CP/1999/7). The secretariat assumes that these guidelines will be updated and revised by the COP after the trial periods specified in the corresponding COP decisions,[4] and that the COP/MoP will take into account this experience and may refine these guidelines for national systems accordingly.

15. The secretariat is aware that the IPCC good practice guidance is still under consideration by the IPCC. These guidelines were prepared under the assumption that the report will be adopted by the 16th IPCC plenary to be held from 1 to 8 May 2000. A change in this assumption would require a reconsideration of the approach as further elaborated below. Parties would need to reconsider the implications at the twelfth session of the SBSTA.

16. The secretariat recognizes that the IPCC good practice guidance under preparation provides an invaluable guidance for improving the quality of GHG inventories. It is assumed that the estimation of GHG emissions by sources and removals by sinks and the reporting of inventory information under the Kyoto Protocol will evolve so as to improve the quality of GHG inventories. With this purpose and in accordance with the basic elements on national systems agreed upon by the Parties, the secretariat included several elements identified in the IPCC good practice guidance as mandatory requirements of the guidelines. These elements, if accepted by the Parties, would promote a higher quality inventories by Annex I Parties in relation to the current practices under the Convention.

17. The secretariat also recognizes that the achievement of higher quality inventories is an evolutionary process. Further improvements in these guidelines could be envisioned once Parties gain more experience following the good practice guidance and additional resources are available to the preparation of national GHG inventories. Therefore, some elements of the IPCC good practice guidance were not included as mandatory in the draft guidelines. The secretariat hopes it has proposed an appropriate balance between the mandatory and desirable elements included in the draft guidelines.

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[4] Decision 3/CP.5 decided to consider possible revisions of the UNFCCC reporting guidelines on annual inventories at the fifteenth session of the SBSTA. The Subsidiary Body for Implementation (SBI), following the advice of the SBSTA, agreed to set up a two-year trial period beginning in early 2000, to assess the UNFCCC reporting guidelines on annual inventories, particularly the common reporting format, with a view to revising them at COP 7, taking into consideration, *inter alia*, experience gained by Parties and the secretariat, and the input of the IPCC. Decision 6/CP.5 adopted for a trial period covering inventory submissions due in 2000 and 2001 the guidelines for technical review of greenhouse gas inventories from Annex I Parties. The COP requested the SBI to evaluate the experience with the technical review for adopting revised guidelines for technical review of inventories at the eighth session of the COP.

18. It is also assumed that after the consideration of the IPCC good practice guidance by the SBSTA, Annex I Parties will decide to use the IPCC good practice guidance to the extent possible and test them when preparing their national GHG inventories to be submitted from the year 2001. This test would facilitate the refining of these guidelines of national systems, as well as of the UNFCCC reporting guidelines on annual inventories and the guidelines for technical review of inventories of Annex I Parties, by the COP and/or the COP/MoP, as appropriate.

19. The draft guidelines consider the need for consistency and coherence with other provisions of the Kyoto Protocol, such as other guidelines, modalities and rules under Articles 3.3, 3.4, 5.2, 6, 7, 8, 12 and 17. Additional elements resulting from work on these Articles may need to be reflected in the guidelines for national systems in the future.

20. The initial draft of guidelines for national systems includes several footnotes with the purpose of providing supplementary information for its consideration. Most of them will not be included when the guidelines are completed.

21. In accordance to the Article 5.1 of the Kyoto Protocol, each Annex I Party shall have in place a national system, no later that one year prior to the start of the first commitment period. However, it may take several years to put in plan the proper institutional and procedural arrangements for such a system. Timely completion of the guidelines for national systems by COP 6 would enable Parties to begin to make such arrangements and could allow the testing of national systems in advance of the year 2007. This approach may also be necessary for the improvement and refining of these guidelines, if Parties so wish. Furthermore, early completion of the guidelines would allow Parties to better prepare themselves to meet the requirements of the Kyoto Protocol, including an early identification of the fulfilment of their obligations under Article 5.1.

Annex I

INITIAL DRAFT GUIDELINES FOR NATIONAL SYSTEMS FOR THE ESTIMATION OF ANTHROPOGENIC GREENHOUSE GAS EMISSIONS BY SOURCES AND REMOVALS BY SINKS UNDER ARTICLE 5.1 OF THE KYOTO PROTOCOL[1]

I. OBJECTIVES

1. The objectives of national systems under Article 5.1 for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, referred to below as national systems, are:

(a) To enable Parties included in Annex I to the Convention (Annex I Parties) to estimate greenhouse gas (GHG) emissions by sources and removals by sinks, as required by Article 5.1;

(b) To assist Annex I Parties in meeting their commitments under Articles 3 and 7;

(c) To facilitate the review of the information submitted under Article 7.1 by Annex I Parties, as required by Article 8; and

(d) To assist Annex I Parties to improve the quality of their inventories.[2]

II. DEFINITION OF NATIONAL SYSTEM

2. A national system includes all institutional, legal and procedural arrangements within an Annex I Party for estimating, reporting and archiving inventory information as required by these guidelines for national systems[3] to meet their obligations under the Kyoto Protocol.

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[1] All articles referred to in these guidelines are those of the Kyoto Protocol, unless references to other documents are specified. For the sake of brevity, the Kyoto Protocol is not specified after each article.

[2] The term "national GHG inventories" is referred to as "inventories" in these guidelines for the sake of brevity.

[3] The Guidelines for National Systems for Estimation Anthropogenic Emissions by Sources and Removals by Sinks of All Greenhouse Gases not Controlled by the Montreal Protocol under Article 5.1 of the Kyoto Protocol are referred to as "guidelines for national systems" in this document.

III. CHARACTERISTICS AND OTHER DEFINITIONS

3. National systems should ensure the transparency, consistency, comparability, completeness and accuracy of inventories as defined in 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 the fifth Conference of the Parties, referred to below as the reporting guidelines on annual inventories, or any subsequent revisions of these guidelines to be adopted by the COP/MoP, taking into account relevant decisions of the Conference of the Parties.

4. National systems should ensure confidence in the quality of the inventory data by implementing uncertainty assessment and quality assurance/quality control activities.

5. National systems should be robust enough to support compliance with the Kyoto Protocol by ensuring the performance of the mandatory functions and making every effort to perform the desirable functions, as are both included in these guidelines for national systems.[4]

6. National systems may differ among Annex I Parties depending on their national circumstances. Such differences shall not negatively affect the performance of national systems.

7. In the context of the guidelines for national systems the following definitions are accepted:

(a) Good practices, as defined in the IPCC good practice guidance,[5] are a set of procedures that aim to produce inventories which are accurate in the sense of being neither over nor underestimated as far as could be judged, and in which uncertainties are reduced as far as practicable. Good practices aim also to produce inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and assurance, and efficient in the use of resources. The good practice guidance covers choice of estimation methods appropriate to national circumstances, quality assurance and quality control at the national level, quantification of uncertainties, and data archiving and reporting to promote transparency. Good practices guidance does not revise or replace the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories,[6] but provides a reference that complements and is consistent with those guidelines;

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[4] For the purpose of these guidelines the verb "shall" precedes the mandatory functions and the verb "should" precedes the desirable functions to be performed by national systems.

[5] The IPCC "Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories" is referred to as the "IPCC good practice guidance" in these guidelines. The report is intended to be available for consideration by the SBSTA at its twelfth session.

[6] The Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories are referred to as the IPCC Guidelines in these guidelines for national systems.

(b) Quality assurance and quality control (QA/QC) encompasses activities aimed at improving the quality of the inventories. These activities may be common to all the inventory source-categories or may be specific for of them. Quality Control and Quality Assurance activities have respectively different characteristics as defined below:

(i) Quality Control (QC) is a system of routine technical activities implemented by inventory development personnel to measure and control the quality of the inventory as it is being developed. It is designed to provide routine and consistent checks to ensure data integrity, correctness and completeness, to identify and address errors and omissions, and to document and archive inventory material and record all activities.

QC activities include general methods such as accuracy checks on data acquisition and calculations and the use of approved standardised procedures for emission calculations, measurements, estimating uncertainties, and reporting. Higher tier QC activities also include technical reviews of sources, activity and emission factor data, and methods.

(ii) Quality Assurance (QA) activities include a planned system of review procedures conducted by personnel not directly involved in the inventory compilation/development process. Reviews should be performed upon a finalized inventory, preferably by independent third parties, following the implementation of the QC procedures. Reviews verify that data quality objectives were met and ensure that the inventory represents the best possible estimate of emissions and sinks given the current state of scientific knowledge and data available, and assess the effectiveness of the QC Programme.

(c) Source-category refers to the emissions by sources and removals by sinks of greenhouse gases as used in the IPCC Guidelines for describing methods to estimate a national greenhouse gas inventory. In each IPCC source category emissions/removals of different greenhouse gases may exist.

(d) Key source-category is one that is prioritized within the inventory because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both. The identification of key-source categories allows that resources available for inventory preparation can be prioritized and the best possible estimates be prepared for the most significant sources.[7]

(e) Decision tree is a procedure set out in the IPCC good practice guidance for choosing the estimation method of the emissions/removals of a given source-category in each sector of the IPCC Guidelines, which is illustrated in figure 1 of the appendix to these guidelines. The decision trees formalize the choice of estimation method most suited to national circumstances. The sectoral advice linked to the decisions trees also provides information on the choice of emission factors and activity data.

III. GENERAL FUNCTIONS

8. The national system to be established by each Annex I Party taking into account their national circumstances shall provide for ensuring the following general functions:

(a) The preparation of national inventories according to the methodologies of the IPCC Guidelines, as elaborated by any good practices[8] agreed upon by the COP/MoP taking into account relevant decisions of the COP;

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[7] Generally inventory uncertainty is lower when emissions are estimated using the most rigorous methods, but due to finite resources, this may not be feasible for every source-category. In accordance with the good practice guidance key source categoriess are those for which the most rigorous methods should apply, whereas this is not required for non key source categoriess. Key source categoriess are identified by performing a quantitative analysis in which the uncertainty of the emissions/removals estimates of each source-category is taken into account. Key source categories may also be identified using relevant qualitative criteria. Specific methodological guidance is provided in the IPCC good practice guidance.

[8] The IPCC good practice guidance has not addressed emissions and removals associated with carbon stocks in the land- use, land-use change and forestry sector in this phase of the work because of the parallel IPCC activity to produce a Special report. The IPCC is intended to define good practices in this area also, once the Special Report is complete and Parties have had time to consider it. It is assumed that the general good practices elements included in this guidelines for national systems are also related to the land-use, land-use change and forestry sector. It is also assumed that when the IPCC completes its work on good practices in this sector, the specific elements resulting from this work will be included into these guidelines for national systems in a coherent and consistent manner with elements from other sectors.

(b) The reporting in a timely manner of an annual inventory according to the reporting guidelines on annual inventories, or any subsequent revisions of these guidelines to be adopted by the COP/MoP, taking into account relevant decisions of the Conference of the Parties;[9]

(c) The reporting in timely manner of the supplementary information to be incorporated in the inventory[10] for the purposes of ensuring compliance with Article 3, to be determined by the COP/MoP in accordance with Article 7.1;

(d) The implementation of institutional, legal and procedural arrangements, as appropriate, between the government agencies with other entities responsible for the performance of the functions defined in these guidelines; and

(e) The implementation of arrangements for ensuring for the technical competence and its evolution of the staff involved in the inventory development process.

IV. SPECIFIC FUNCTIONS

9. In order to meet the above-mentioned general functions in accordance with the principles set in these guidelines each Annex I Party shall undertake specific functions in its inventory development process,[11] namely during the inventory planning, preparation and management.

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[9] Decision 3/CP.5 decided to consider possible revisions of the UNFCCC reporting guidelines on annual inventories at the fifteenth session of the SBSTA. The Subsidiary Body for Implementation (SBI), following the advice of the SBSTA, agreed to set up a two-year trial period beginning in early 2000, to assess the UNFCCC reporting guidelines on annual inventories, particularly the common reporting format, with a view to revising them at COP 7, taking into consideration, *inter alia*, experience gained by Parties and the secretariat, and the input of the IPCC.

[10] The information referred to here includes only supplementary information related to greenhouse gas emissions and removals. The definitive scope of the supplementary information under Article 7.1, which may include inventory and non-inventory related information, will be defined in the guidelines under Article 7 to be adopted by COP/MOP.

[11] For the purpose of these guidelines the inventory development process encompasses inventory planning, preparation and management. These steps are not comprehensive and therefore may be identified in other different ways. These steps of the inventory development process are considered in these guidelines only with the purpose of clearly identify the functions to be performed by the national systems, as described in paragraphs 10 to 11 below.

10. Inventory planning functions:

(a) Shall include:

(i) The designation of a single national entity responsible for the national inventory;

(ii) The implementation of a process for the official approval of the inventory prior to its submission, use of new and/or revised emission factors and relevant decisions for recalculating estimates that were submitted in previous inventories. This includes the implementation or establishment, as appropriate, of the corresponding institutional, legal and procedural arrangements, as appropriate.

(iii) The designation of the organization(s) responsible for quality control (QC) activities, including the definition of the arrangements for developing and implementing these activities; and

(iv) The elaboration of a documented plan for the planing, preparation, and management of the inventory, including a plan for QC procedures to be implemented along the inventory development process.

(b) Should include:

(i) The designation of the organization(s) responsible for quality assurance (QA) activities, including the definition of the arrangements for developing and implementing these activities; and

(ii) The preparation of a plan for quality assurance (QA) activities to be implemented.

11. Inventory preparation functions:

(a) Shall include:

(i) The identification of key source categories in a systematic and objective manner. The list of source categories to be used for this identifications is included in table 1[12] of the appendix to these guidelines. Each greenhouse gas emitted from a single source-category is to be considered separately, unless there are specific methodological reasons for treating these GHG gases collectively;

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[12] This list was prepared based on the IPCC source categories of the IPCC Guidelines.

(ii) The identification of key source categoriess by performing a quantitative analysis, at least, the Tier 1 approach for identifying key source categories[13] of the IPCC good practice guidance. If nationally derived source uncertainties are available the key source categories may be identified using the Tier 2 approach. The identification of key source categories should include the consideration of other qualitative criteria,[14] such as high expected emission growth, high uncertainty or unexpectedly low or high emissions, as defined in the IPCC good practice guidance;

(iii) The use of recommended methods (tiers)[15] by the good practice guidance in all source categoriess in accordance with the corresponding decision trees and with the national availability of data. This includes the pursuit of the good practice guidance related to the choice of emission factors and activity data for the relevant method in each source-category. Parties should make every effort to use the most rigorous method(s) (tier(s)) recommended by the good practice guidance in accordance with the corresponding decision trees in that source categoriess that are identified as key; unless national circumstances preclude this;

(iv) The provision of information on why the most rigorous method (s) (tier(s)) recommended by the good practice guidance was not used for the estimation of emissions/removals of the identified key source categories. This includes information on actions taken to fill the identified data gaps that precludes to use such most rigorous method;

(v) The establishment of the institutional, legal and procedural arrangements, for collecting, processing and communicating, inventory data necessary for the preparation and reporting of the inventory as defined in sub-items (a) (b) and (c) of paragraph 7 above and in

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[13] The Tier 1 approach is the simpler for the identification of key sources. The Tier 2 method is a more detailed analysis which builds on the Tier 1 approach, and it is likely to reduce the number of key sources resulting from the identification using Tier 1.

[14] In most cases, the application of these qualitative criteria will identify source categories already defined as key through the quantitative analysis. Some additional key sources may be identified, however, and these may be added to the list of key sources.

[15] In almost all source categoriess of the IPCC Guidelines two or more tiers exist for estimating GHG emissions and removals. Generally, when data is available, the less uncertain estimates results from a higher IPCC Tier.

accordance with provisions of subparagraph 10 (a)(ii) and (iii) above. These arrangements shall provide for the necessary authority for a timely collection of data. These arrangements shall ensure a close co-operation between the national entity responsible for the national inventory and the entity(ies) responsible for the national statistical services; and

(vi) The application of the general inventory level QC procedures (Tier 1 QC)[16] as included in table 2 of the appendix to these guidelines.

(b) Should include:

(i) The application of source category specific QC procedures (Tier 2 QC)[17] for the individual source categories that are identified as key;

(ii) The application of source-category specific QC procedures (Tier 2 QC) for those individual source categoriess in which significant methodological and data revisions have taken place;

(iii) The conduction of a basic expert review of the inventory (Tier 1 QA)[18] by personnel that have not been involved in the inventory development, preferably an independent third party; before the submission of the inventory. Key source categoriess should be given priority as well as to source categoriess where significant changes in methods or data have been made. Parties may also choose to perform more extensive expert peer review and/or audits as additional (Tier 2)[19] QA procedures within the available resources.

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[16] Tier 1 is the more simple QC procedure described in the IPCC good practice guidance. The focus of the tier 1 QC procedures is on the processing, handling, documenting, archiving and reporting procedures that are common to all the inventory sources.

[17] In contrast to general QC techniques, Tier 2 QC source-category specific procedures are directed at emission and activity data and uncertainties used in the estimation methods of individual source categories.

[18] Tier 1 is the more simple QA procedure described in the IPCC good practice guidance. The focus of the tier 1 QC procedures is to identify potential problems and make corrections where possible.

[19] Expert peer review consists of a review of calculation or assumptions, by experts in relevant fields. This procedure is accomplished by reviewing the documentation associated with the methods and results. There are not standard tools for expert peer review, and its use should be considered on a case-by-case basis. Audits are used to evaluate how effectively the inventory development team complies with the minimum specifications outlined in the QC plan.

12. Inventory management functions:

(a) Shall include:

(i) The archiving of the information on base year inventory estimated in accordance with the provisions of Article 3.5 and 3.8 and any relevant decision that the COP/MoP may adopt in the context of the Article 7.4;

(ii) The archiving of the inventory information of each year in accordance with the reporting guidelines on annual inventories, or any subsequent revisions of these guidelines to be adopted by the COP/MoP, taking into account relevant decisions of the Conference of the Parties. This information should allow the review activities by the expert review team such as the partial or total reconstruction[20] of the inventory;

(iii) The response to requests for clarifying inventory information resulting from the different stages of the review process of the inventory information and information on national system in a timely manner, as defined in the revised guidelines for the technical review of the inventories of Annex I Parties to be adopted by the eighth session of the COP or any subsequent revision to be adopted by the COP/MoP;

(iv) The access to the archived inventory information by the expert review teams, except for that part of information which contain confidential data. This part of confidential information can be accessible under the provisions of confidentiality for managing inventory information to be developed by each Annex I Party in accordance to the appropriate guidelines to be adopted by the COP/MOP;[21]

(v) The archiving of internal documentation of QA/QC activities, including corrections and modifications to the inventory resulting from these activities; and

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[20] The paper trail implicit in the reconstruction of a inventory should enable estimates of emissions and removals to be traced back to the original disaggregated emission factors and activity data.

[21] The provisions of confidentiality may be developed under future versions of the revised guidelines for the technical review of the inventories of Annex I Parties to be adopted by the eighth session of the COP or any subsequent revision to be adopted by the COP/MoP.

(vi) The archiving of the documentation on the key source-category identification approaches used, such as relevant spreadsheets with identified key sources;

VI. ADOPTION AND UPDATING OF THE GUIDELINES

13. These guidelines for national systems shall be adopted, reviewed and revised, as appropriate, according to the decisions of the COP/MoP, taking into account any relevant decision of the COP.

VII. LINKAGES WITH OTHER PROVISIONS OF THE PROTOCOL

(a) Participants may wish to incorporate elements resulting from the considerations by the COP of issues related to Articles 3.3 and 3.4 in the guidelines for national systems.

(b) Participants may wish to consider if methodologies for application of adjustments under Article 5.2 should be incorporated in the guidelines for national systems under Article 5.1[22], or whether such methodologies should be linked to other Articles of the Protocol. Participants may also wish to defer this consideration until the completion of the on-going work on adjustments under Article 5.2.

(c) Participants may wish to consider what elements, if any, related to modalities for accounting of assigned amounts, should be incorporated in the guidelines for national systems or whether such elements should be linked to other Articles of the Protocol. The annotated agenda of the

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[22] Text of Article 5.1. Each Party included in Annex I shall have in place, no later than one year prior to the start of the first commitment period, a national system for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol. Guidelines for such national systems, which shall incorporate the methodologies specified in paragraph 2 below, shall be decided upon by the Conference of the Parties serving as the meeting of the Parties to this Protocol at its first session.

Text of Article 5.2. Methodologies for estimating anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol shall be those accepted by the Intergovernmental Panel on Climate Change and agreed upon by the Conference of the Parties at its third session. Where such methodologies are not used, appropriate adjustments shall be applied according to methodologies agreed upon by the Conference of the Parties serving as the meeting of the Parties to this Protocol at its first session. Based on the work of, *inter alia*, the Intergovernmental Panel on Climate Change and advice provided by the Subsidiary Body for Scientific and Technological Advice, the Conference of the Parties serving as the meeting of the Parties to this Protocol shall regularly review and, as appropriate, revise such methodologies and adjustments, taking fully into account any relevant decisions by the Conference of the Parties. Any revision to methodologies or adjustments shall be used only for the purposes of ascertaining compliance with commitments under Article 3 in respect of any commitment period adopted subsequent to that revision.

twelfth session of SBSTA invites Parties to come prepared with views on modalities for accounting of assigned amounts.

(d) Participants may wish to consider what elements, if any, related to mechanisms under Articles 6, 12 and 17 should be incorporated in the guidelines for national systems or whether such elements should be linked to other Articles of the Protocol. The annotated agenda of the session of the twelfth session SBSTA invites Parties to come prepared with views on this issue.

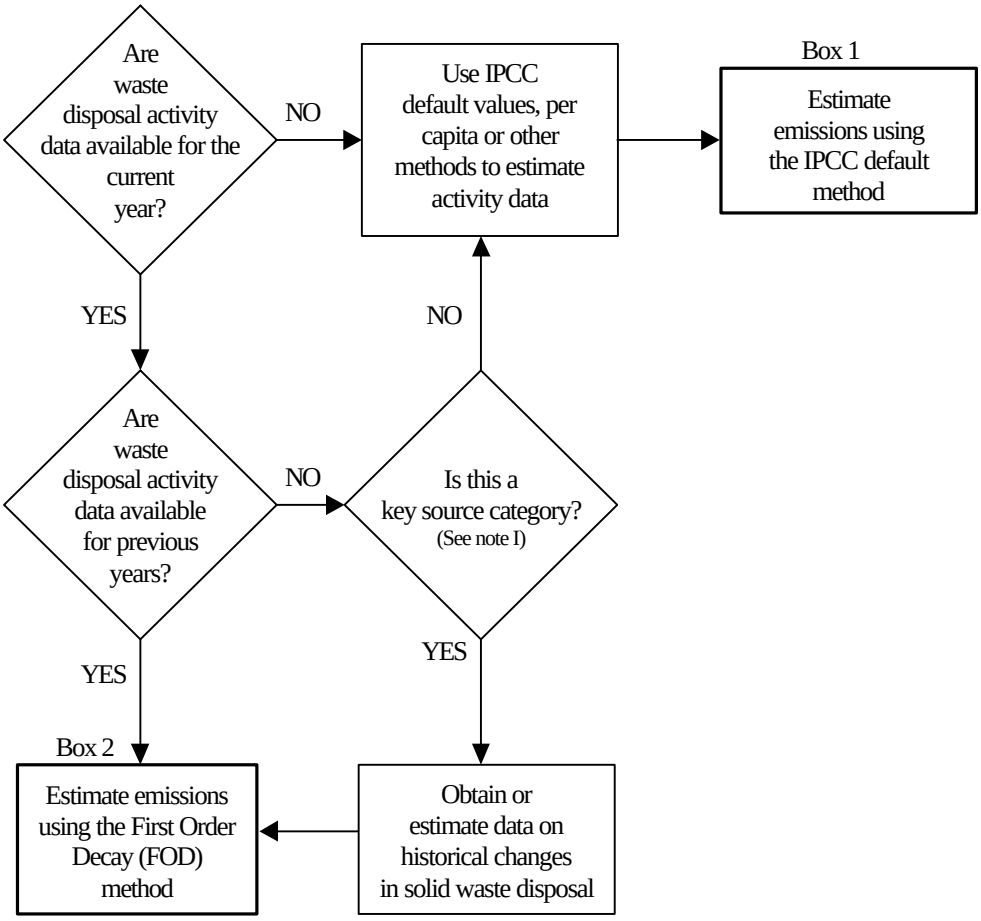
(e) Participants may wish to defer the consideration of criteria for meeting obligations with Article 5.1 until SBSTA 12 when the text of the guidelines will be more elaborated. Participants may recommend the provision of views on this issue for that session of the SBSTA.

(f) Participants may wish to consider what elements of the national systems should be reported under guidelines of Article 7 and, if possible, elaborate on suggestions for supplementary information related to this issue with the participants of the working group on guidelines on Article 7 at the workshop.

Appendix to the guidelines for national systems under Article 5.1 of the Kyoto Protocol

Figures and Tables

Figure 1. Example-decision tree for choice of method for methane emissions from solid waste disposal sites



NOTE:

(I) A **key source category** is one that is prioritized within the national inventory system because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both.

Table 1. List of source categories to be assessed

Source categories to be assessed in key source analysis	**Special considerations**
Emissions from Energy Use	
CO_2 Emissions from Stationary Combustion	Disaggregate to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-categories, these should be distinguished in the analysis.
Non-CO_2 Emissions from Stationary Combustion	Assess emissions from CH_4 and N_2O separately.
Mobile Combustion: Road Vehicles	Assess emissions from CO_2, CH_4 and N_2O separately.
Mobile Combustion: Waterborne Navigation	Assess emissions from CO_2, CH_4 and N_2O separately.
Mobile Combustion: Aircraft	Assess emissions from CO_2, CH_4 and N_2O separately.
Fugitive Emissions from Coal Mining and Handling	If this source is key, it is likely that underground mining will be the most significant sub-category.
Fugitive Emissions from Natural Gas and Oil	This source category comprises several sub-categories which may be significant. Countries should assess this source category, if it is key, to determine which sub-categories are most important.
Agricultural Sources	
CH_4 Emissions from Livestock Enteric Fermentation	If this source is key, it is likely that cattle, buffalo and/or sheep will be the most significant sub-categories.
CH_4 Emissions from Manure Management	If this source is key, it is likely that cattle and/or swine will be the most significant sub-categories.
N_2O Emissions from Animal Waste Management Systems	
CH_4 and N_2O Emissions from Savanna Burning	Assess emissions from CH_4 and N_2O separately.
CH_4 and N_2O Emissions from Agricultural Residue Burning	Assess emissions from CH_4 and N_2O separately.
Direct N_2O Emissions from Agricultural Soils	
Indirect N_2O Emissions from Nitrogen Used in Agriculture	
CH_4 Emissions from Rice Production	
Industrial Processes and the New gases	
CO_2 Emissions from Cement Production	
CO_2 Emissions from Lime Production	
CO_2 Emissions from the Iron and Steel Industry	
N_2O Emissions from Adipic and Nitric Acid Production	Assess adipic and nitric acid separately.
PFCs Emissions from Aluminium Production	

Source categories to be assessed in key source analysis	**Special considerations**
SF_6 in Magnesium Production	
SF_6 Emissions from Electrical Equipment	
SF_6 Emissions from Other Uses	
SF_6 Emissions from Production of SF6	
PFC, HFC, SF_6 Emissions from Semiconductor Manufacture	Assess emissions from all compounds jointly on a GWP-weighted basis, since they are all used in similar fashions in the process.
Substitutes for Ozone Depleting Substances (ODS)	Assess emissions from all HFCs and PFCs used as substitutes for ODS jointly on a GWP-weighted basis, given the importance of having a consistent method for all ODS sources.
Estimation of HFC-23 from HCFC-22 Manufacture	
Emissions from Waste	
CH_4 Emissions from Solid Waste Disposal Sites	
CH_4 Emissions from Wastewater Handling	
N_2O Emissions from Human Sewage	
Emissions from Waste Incineration	Assess emissions from CO2 and N2O separately.
Other	Other sources of direct greenhouse gas emissions not listed above should also be included.

Note: The LUCF source category is not included in the table. In principle, the method described in this chapter could be applied to LUCF, but further work on this topic is necessary.

Table 2. Tier 1 General inventory level QC procedures

QC ACTIVITY	PROCEDURES
Select the source categories from each sector as the samples for QC checks and document the categories and the selection criteria.	· Identify the key source categories and ensure that these are included in the QC process. Select a number of additional source categories, representing all sectors. · Establish criteria and processes under which all source categories will be checked during a given period of time (i.e., every three years).
Check for data input errors during the transcription from the original references and document the categories checked and the findings.	· Confirm that bibliographical data references are properly cited. · Check that assumptions and criteria for selection of activity data and emission factors are documented. · Crosscheck a sample of input data from each source category (either measurements or parameters used in calculations) for transcription errors.
Check that emissions are calculated correctly and document the categories checked and the findings.	· Manually duplicate a representative sample of emission calculations. · Selectively mimic complex model calculations with abbreviated manual calculations to judge relative accuracy.
Check that parameter and emission units are correctly recorded and that appropriate conversion factors are used and document the categories checked and the findings.	· Check that units are properly labeled in calculation sheets. · Check that units are correctly carried through from beginning to end of calculations. · Check that conversion factors are correct. · Check that temporal and spatial adjustment factors are used correctly.
Check the integrity of database files and document the categories checked and the findings.	· Confirm that the data path is correctly represented in the database and that all necessary processing steps have been followed. · Confirm that data relationships are correctly represented in the database. · Ensure that data fields are properly labeled and have correct the design specifications.
Check for consistency in data between source categories and document the categories checked and the findings.	· Identify parameters (e.g., activity levels, constants) that should be common to multiple source categories and confirm that there is consistency in the values used for these parameters in the emission calculations.
Check that the movement of inventory data among processing steps is correct and document the categories checked and the findings.	· Check that emissions data are correctly aggregated from lower reporting levels to higher reporting levels when preparing summaries. · Check that emissions data are correctly transcribed between different intermediate products.

QC ACTIVITY	PROCEDURES
Check that uncertainties in emissions and removals are estimated or calculated correctly and document the categories checked and the findings.	· Check that qualifications of experts providing uncertainty estimates are appropriate. · Check that qualifications, assumptions and expert judgments are recorded. Check that calculated uncertainties are complete and calculated correctly. · If necessary, manually duplicate error calculations or a small sample of the probability distributions used by Monte Carlo analyses, including the modes of all parameters.
Undertake review of internal documentation and document the categories checked and the findings.	· Check that there is detailed internal documentation to support the estimates and enable duplication of the emission and uncertainty estimates. · Check that inventory data, supporting data, and inventory records are archived and stored to facilitate detailed review.
Check methodological and data changes resulting in recalculations and document the categories checked and the findings.	· Check for temporal consistency in time series input data for each source category. · Check for consistency in the algorithm/method used for calculations throughout the time series.
Undertake completeness checks and document the findings.	· Confirm that estimates are reported for all source categories and for all years from the appropriate base year to the period of the current inventory. · Check that known data gaps that result in incomplete source category emission estimates are documented.

Annex II

OUTLINE FOR THE CONSIDERATION OF METHODOLOGICAL AND TECHNICAL ASPECTS OF THE INITIAL DRAFT OF THE GUIDELINES FOR NATIONAL SYSTEMS

1) CONTENT Elements to be considered	Are the coverage and level of detail adequate?	Are there new elements to be included or are there elements to be dropped?	Is the balance of mandatory and desirable functions adequate?	Are there new functions to be included or are there functions to be dropped?	Are there comments to the current text?
OBJECTIVES					
DEFINITION OF NATIONAL SYSTEMS					
CHARACTERISTICS AND OTHER DEFINITIONS					
GENERAL FUNCTIONS					
SPECIFIC FUNCTIONS:					
a) PLANNING					
b) PREPARATION					
c) MANAGEMENT					

2) STRUCTURE:

a) Is the structure of the guidelines appropriate?

b) Are there new chapters to be included or are there chapters to be dropped?

3) LINKAGES WITH OTHER PROVISIONS OF THE PROTOCOL?

a) How should elements resulting from the considerations by the COP of issues related to Articles 3.3 and 3.4 be incorporated in the guidelines?

b) Should methodologies for application of adjustments under Article 5.2 be incorporated in the guidelines? Should this decision be deferred until the completion of the on-going work on adjustments?

c) Should elements related to modalities for accounting of assigned amounts under Article 7.1, if any, be incorporated in the guidelines? Should this decision be deferred until the completion of the consideration of this issue?

d) Should elements related to mechanisms under Articles 6, 12 and 17, if any, be incorporated in the guidelines? Should this decision be deferred until the completion of the on-going work on mechanisms?

e) Should the criteria for meeting obligations with Articles 5.1 be defined at this stage? Should this decision be deferred until the completion of the completion of the work on the guidelines?

f) What elements of the national systems should be requested to be reported under the guidelines of Article 7?

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