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Methodological issues under the Convention

Revision of the UNFCCC reporting guidelines on annual inventories for

Parties included in Annex I to the Convention

**Report on the workshop on issues relating to the revision of
the UNFCCC Annex I reporting guidelines for reporting of
inventories under the Convention**

Note by the secretariat

Summary

This report provides a summary of the second workshop organized to implement the work programme of the Subsidiary Body for Scientific and Technological Advice (SBSTA) to revise 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”. The workshop was organized by the secretariat and was held in Bonn, Germany, on 3 and 4 November 2010 in response to a request by the SBSTA at its thirty-second session (FCCC/SBSTA/2010/6, para. 67). At the workshop, participants shared their views on methodological issues related to reporting when using the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* and agreed on relevant recommendations for further consideration by the SBSTA at its thirty-third session.

Contents

	<i>Paragraphs</i>	<i>Page</i>
I. Introduction.....	1–4	3
A. Mandate.....	1–3	3
B. Scope of the note.....	4	4
II. Proceedings of the workshop.....	5–8	4
III. Summary of the discussions.....	9–25	4
A. Issues related to land use, land-use change and forestry.....	10–17	4
B. Issues not related to land use, land-use change and forestry.....	18–22	6
C. Methodological issues related to reporting when using the 2006 IPCC Guidelines.....	23–24	7
D. Implications on current UNFCCC Annex I reporting guidelines.....	25	8
IV. Conclusions and recommendations.....	26–44	9
A. Methodological issues related to land use, land-use change and forestry.....	26–31	9
B. Methodological issues not related to land use, land-use change and forestry.....	32–36	10
C. Methodological issues related to reporting when using the 2006 IPCC Guidelines.....	37–39	11
D. Implications on current UNFCCC Annex I reporting guidelines.....	40–44	11

I. Introduction

A. Mandate

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its thirtieth session, agreed to launch a work programme¹ to revise 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” (hereinafter referred to as the UNFCCC Annex I reporting guidelines), with a view to recommending the revised UNFCCC Annex I reporting guidelines for adoption by the Conference of the Parties, for regular use starting in 2015.

2. The SBSTA, at its thirty-second session, agreed on the process and timeline of the work programme mentioned in paragraph 1 above. The SBSTA requested the secretariat, at the same session, subject to the availability of funding, to organize a second workshop under the work programme, to be held in October 2010.² It agreed that participants should address the following methodological issues related to reporting when using the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the 2006 IPCC Guidelines):

(a) Agriculture, forestry and other land-use (AFOLU) issues related to the reporting of anthropogenic emissions and removals, such as the treatment of emissions and removals from natural disturbance, and inter-annual variability between the 2006 IPCC Guidelines, the *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF) and the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, and managed land proxy (MLP);

(b) Harvested wood products;

(c) Options for updating or adding default parameters;

(d) Effects of using higher-tier methods;

(e) Time-series consistency and recalculations;

(f) Wetlands;

(g) Nitrous oxide (N₂O) emissions from soils;

(h) Methodological implications of reporting the agriculture and land use, land-use change and forestry (LULUCF) sectors separately.

3. At the same session, the SBSTA invited the Intergovernmental Panel on Climate Change (IPCC) to organize an expert meeting to explore the need and ways to clarify methodological issues related to reporting on harvested wood products, wetlands and N₂O emissions from soils. The SBSTA also invited the IPCC to provide information to participants of the second workshop on the recommendations of this expert meeting. In addition, the SBSTA invited the IPCC to provide to participants of the second workshop information on two other IPCC expert meetings, on revisiting the use of MLP for estimating national anthropogenic emissions and removals and on the use of models and measurements in greenhouse gas (GHG) inventories, which were held in 2009 and 2010, respectively.

¹ FCCC/SBSTA/2009/3, paragraph 101.

² FCCC/SBSTA/2010/6, paragraph 67.

B. Scope of the note

4. This report contains information about the proceedings and discussions held during the workshop and outlines conclusions and recommendations for consideration by the SBSTA at its thirty-third session.

II. Proceedings of the workshop

5. The second workshop of the work programme was organized by the secretariat and was held in Bonn, Germany, on 3 and 4 November 2010. It was opened by Mr. Vitaly Matsarski, Coordinator of the Reporting, Data and Analysis programme of the secretariat. Ms. Katia Simeonova, Manager of the Review and Analysis subprogramme, read a statement from Mr. Mama Konaté, the Chair of the SBSTA, addressed to the participants. The workshop was chaired by Ms. Helen Plume (New Zealand).

6. The workshop covered the issues mentioned in paragraph 2 above. This workshop also considered methodological implications concerning reporting when using the revised UNFCCC Annex I reporting guidelines, namely the national inventory report (NIR) and the common reporting format (CRF) tables.

7. Fourteen experts from Parties not included in Annex I to the Convention, 55 experts from Parties included in Annex I to the Convention (Annex I Parties) and two representatives of the IPCC attended the workshop.

8. The workshop was divided into six parts. In the first part the Chair presented the mandate and objectives of the workshop. The second part covered issues related to LULUCF, with a representative of the IPCC introducing the topic with a brief presentation. The third part covered non-LULUCF issues, with representatives of the IPCC and/or the secretariat introducing each topic through a brief presentation. Part four covered methodological issues related to reporting when using the 2006 IPCC Guidelines. The fifth part covered implications on the current UNFCCC Annex I reporting guidelines introduced by the application of the 2006 IPCC Guidelines. Representatives of the secretariat introduced the topics through a short presentation in both part four and part five. The last part was a general discussion on the conclusions and recommendations of the workshop that are to be considered by the SBSTA at its thirty-third session.

III. Summary of the discussions

9. This chapter provides a summary of the main points of the discussions during the workshop. At the end of the workshop the participants agreed on conclusions and recommendations, which are included in chapter IV below. In order to avoid repetition, the conclusions and recommendations are not included in this chapter.

A. Issues related to land use, land-use change and forestry

10. Representatives of the IPCC provided information on the three expert meetings mentioned in paragraph 3 above. Three presentations were given on:

- (a) Revisiting the use of managed land as a proxy for estimating national anthropogenic emissions and removals;
- (b) Harvested wood products, wetlands and N₂O emissions from soils;

(c) Tier 3 approaches, complex models or direct measurements, in GHG inventories.

11. Participants thanked the IPCC for the information given on the meeting held in 2009 on MLP for estimating national anthropogenic emissions and removals. Subsequent discussion highlighted that, overall, MLP is a useful and an applicable means to identify anthropogenic emissions and removals, but that there are issues concerning its use in estimating emissions and subsequent reporting. Discussions centred on the following:

(a) The conclusion made at the IPCC expert meeting that none of the alternative approaches explored are sufficiently developed;

(b) The shortcomings of using MLP, namely that it does not accurately represent emissions from managed forest and wetlands, as effects associated with natural disturbance and climate variability are not excluded (*vis-à-vis* factoring out of these effects);

(c) That MLP remains a globally applicable, assessed and approved method for separating anthropogenic emissions and removals and is the one method available for Parties to use to estimate emissions and removals within the framework of the IPCC good practice guidance for LULUCF. However, it was noted that MLP causes problems for Parties using higher-tier methods as it does not take into account, for example, natural disturbances. Any reporting guidance on the use of MLP must allow Parties to report “additional method/information”, but this “additional method” must not be a subset of MLP. If Parties are to explore reporting “additional method/information”, it must be as comprehensive as possible;

(d) Problems stemming from defining managed land. It was noted that there are differences between Parties that affect comparability, therefore the issue is “how” to use MLP, not “if” to use it;

(e) The need for Parties to move forward on the problems related to MLP mentioned in subparagraphs (b)–(d) above, starting with the use of MLP to identify alternative approaches to ascertain the anthropogenic component. However, it was noted that any move forward must be within defined borders (i.e. the framework of the IPCC good practice guidance for LULUCF) in order to ensure comparability between Parties.

12. Participants noted that MLP is an area in which the IPCC could continue to address in the longer term.

13. The comparability of inventories across Parties is an important element of the reporting and review process. The Chair of the workshop, in her closing remarks on this part of the agenda, suggested that the issue of “comparability” be discussed by lead reviewers in their next meeting in 2011. The Chair also acknowledged that reporting guidance on tier 3 approaches may need to be considered further.

14. Participants thanked the IPCC for the information given on the meeting held in 2010 on harvested wood products (HWPs), wetlands and N₂O emissions from soils. Key considerations presented by the IPCC include the following:

(a) That the 2006 IPCC Guidelines contain the latest science;

(b) With regard to wetlands, gaps had been identified in relation to the rewetting of peatland, wetland restoration, and carbon dioxide (CO₂) and methane emissions from reservoirs;

(c) With regard to HWPs:

(i) That mistakes were identified in the current guidance and a corrigendum will be prepared by the IPCC;

(ii) That a “frequently asked questions” section will be prepared and added to the IPCC website;

(iii) That future reporting may require the development of methods for estimating emissions from HWPs;

(d) With regard to N₂O emissions from soils, a corrigenda will be prepared by the IPCC and placed on its website. In addition, the IPCC noted that additional work needs to be undertaken in this area and that much scientific work has recently been undertaken.

15. Participants discussed the issue of HWPs and noted that decisions on this matter in the future will need to determine how these emissions are to be included in total GHG emissions. With regard to N₂O emissions from soils, participants noted that the IPCC is to undertake further work in this area and highlighted that the IPCC Emission Factor Database (EFDB) has an important role to play in the further work by the IPCC on N₂O from soils.

16. Participants thanked the IPCC for the information given on the meeting held in 2010 on tier 3 approaches, complex models or direct measurements, in GHG inventories. Discussions among participants on this matter included:

(a) The absence of specific guidance on “how” and “what” to report in relation to the use of higher-tier methods and models;

(b) A proposal to include in the revised UNFCCC Annex I reporting guidelines a checklist (see para. 32 below) as included in the presentation of the IPCC;

(c) The need to simplify CRF table summary 3;

(d) The need for models to reflect national circumstances, which should be reflected in the NIR with respect to accuracy (uncertainties), etc.;

(e) That transparency is key in reporting when using tier 3 approaches. It was noted that information on the structure of the model, the function of the model and the model output must be in a form that can be easily assessed by expert review teams.

17. The Chair of the workshop concluded this agenda item by stressing the clear need for a general agreement on additional reporting guidance on higher-tier methods and models and on facility-level data.

B. Issues not related to land use, land-use change and forestry

18. A representative of the secretariat provided a presentation on recalculations and time-series consistency in the context of applying new methods contained in the 2006 IPCC Guidelines and their back-casting in the inventory time series and associated data collection problems. Participants extended the scope of this item to also consider:

(a) The length of an inventory time series that is to be reported in annual submissions, including reporting specific years only (e.g. base year, 1990, 1995, 2000, 2005, onwards);

(b) Back-casting emissions when implementing a new higher-tier method.

19. Participants acknowledged the importance of time-series consistency, but also recognized that pragmatic and practical solutions must be identified and that in order to do this priorities need to be defined. Further, it was suggested that the 2006 IPCC Guidelines already include recalculation techniques that Parties can use.

20. In the context of recalculations, a participant introduced the issue of “small differences due to rounding”, which are identified by the CRF reporter software and which a Party currently needs to address and explain in its annual submissions. The concept

introduced relates to precluding from recalculation explanations any “small differences”, which are defined as, for example, a percentage of the category estimate; however, any difference resulting from a change in method, activity data or emission factor would still need to be explained.

21. Representatives of the IPCC and the secretariat provided a presentation on the EFDB. Participants acknowledged that the EFDB already plays a role and that the UNFCCC Annex I reporting guidelines could provide guidance on how to use the EFDB. The discussion on the EFDB covered a diverse range of issues, including the following:

(a) The policy context, in which a participant highlighted the fact that the EFDB editorial board processes do not provide the status given by a governmental review process;

(b) The need for some change management process for the EFDB in relation to its own update of emission factors, as the default emission factors of the 2006 IPCC Guidelines are already outdated;

(c) That the new emission factors in the EFDB are in addition to the default emission factors of the 2006 IPCC Guidelines, and that the decision on which emission factor to use is the responsibility of the Party. It was noted, however, that the UNFCCC Annex I reporting guidelines could provide guidance to Parties on how to use the EFDB;

(d) The possibility to include in the UNFCCC Annex I reporting guidelines a statement encouraging Parties to use the EFDB when appropriate, including a justification for its use.

22. The Chair of the workshop concluded that the participants agreed that the EFDB is a library for emission factors and other parameters, that Parties may choose to use information contained in the EFDB, but that they must be responsible for documenting its use, and that guidance on how to encourage Parties to use the EFDB to be given in the revised UNFCCC Annex I reporting guidelines needs to be determined.

C. Methodological issues related to reporting when using the 2006 IPCC Guidelines

23. A representative of the secretariat provided a presentation on the reporting implications introduced by the AFOLU sector in the 2006 IPCC Guidelines. Subsequent discussions underlined the general consensus that the UNFCCC Annex I reporting guidelines should allow Parties to continue reporting agriculture and LULUCF separately because of their relevance to national policy and to ensure continuity of reporting under these guidelines. A participant flagged the issue of reclassification of two categories – N₂O emissions from soil disturbance and savannah burning – and that the latter should be brought back into the agriculture sector. With regard to the implications of reporting of agriculture and LULUCF, it was noted that with the new AFOLU classification, and with the stated support for the continued reporting of agriculture and LULUCF separately, there is a need to go through the details of each category and issue separately and to agree on how to allocate (i.e. map) these to the new CRF structure. Footnotes in the CRF tables will be important in this regard.

24. A representative of the secretariat gave a presentation on other implications of reporting, which had a focus on indirect CO₂ and N₂O emissions. There was a divergence of opinion in the subsequent discussion, with an initial disagreement on the reporting of indirect CO₂ emissions being mandatory, even though most Parties currently report precursor gases and some Parties reporting both precursor gases and indirect emissions. However, the focus switched to a question of whether voluntary reporting is to be supported in the UNFCCC Annex I reporting guidelines in the context of comparability of inventories

between Parties and for completeness. There was a general consensus that voluntary reporting should not be supported. Participants agreed in general that the reporting of these emissions should be separate from the reporting of total GHG emissions until a decision is made on the accounting framework.

D. Implications on current UNFCCC Annex I reporting guidelines

25. A representative of the secretariat gave a presentation on the implications of methodological issues and other issues on the UNFCCC Annex I reporting guidelines. Areas covered included guidance in the context of what to report in the NIR, mandatory versus voluntary reporting, reporting of total GHG emissions and the CRF structure. Participants discussed the following:

(a) With regard to indirect emissions, participants acknowledged that decisions on the accounting framework will be made in the future that will affect the basis of deriving the total GHG emissions and whether to include indirect emissions. For the interim, participants agreed that these emissions should be considered in the revision, especially in the CRF, as separate from total GHG emissions. This was agreed generally on the basis that reporting of these emissions is not to be on a voluntary basis in the context of comparability and consistency between Parties;

(b) With regard to total GHG emissions, there was discussion of whether to allow for reporting with and without factoring out of natural disturbances and climate variability;

(c) With regard to notation keys, there was a general willingness to revisit the definitions of the current set of notation keys. Some Parties sought to explore the use of a new notation key covering emissions that are “negligible”, on the basis that considerable resources are required to estimate such emissions (vis-à-vis cost effectiveness) and that the IPCC provides an opportunity for Parties to prioritize with respect to effort and available resources. There was some concern over providing a Party with flexibility with respect to small sources of emissions and removals and there was a suggestion that an estimate of ‘negligible’ emissions requires a Party to only use a tier 1 method. Further, questions regarding what the threshold would be and how it would be proved that the estimates are below this threshold were raised. Participants agreed that explanations on the use of notation keys should be included in the documentation box. A proposal that gained some support was to review the IPCC/CRF tree during the revision of the UNFCCC Annex I reporting guidelines with a view to identifying those categories that could be moved to “other” in the hierarchy;

(d) With regard to potential emissions of fluorinated gases, Parties generally agreed that potential emissions are not to be included in the UNFCCC Annex I reporting guidelines on the basis that there is no method to support their calculation in the 2006 IPCC Guidelines. There was one objection to this, on the grounds that the potential emissions approach is a useful verification exercise;

(e) With regard to streamlining guidance on reporting between the current UNFCCC Annex I reporting guidelines and the annotated outline of the NIR, Parties in general agreed that there is a need to have a single set of reporting guidelines that address the repetition, redundancy and enhancements required by the aforementioned two reporting guidelines. A participant suggested that the basis of the streamlining would need to be the current UNFCCC reporting guidelines;

(f) With regard to the CRF tables, numerous topics were discussed, including:

- (i) Reporting of years in the inventory time series, especially recalculations when back-casting new methods;
- (ii) The structure and utility of CRF tables, including additional information tables, implied emission factors, duplicative elements and the incorporation of uncertainty data in sectoral background data tables;
- (iii) Removing duplication and adding elements that will improve reporting;
- (g) With regard to CRF Reporter, it was agreed in general that the SBSTA should request the secretariat to create a space for dialog between Parties and the secretariat on technical issues concerning this software. It was suggested that such dialog could take place in a workshop.

IV. Conclusions and recommendations

A. Methodological issues related to land use, land-use change and forestry

26. Participants acknowledged the findings of the IPCC expert meeting on revisiting the use of managed land as a proxy for estimating national anthropogenic emissions and removals. These findings recognized that MLP has several shortcomings, depending on national circumstances, but that possible replacements based on tier 3 methods could potentially refine the estimation of anthropogenic emissions and removals. However, it was considered that further work needs to be carried out by the scientific community on such possible replacements.

27. Participants recommended that Parties continue to use MLP, as it remains a globally applicable, assessed and approved method for estimating emissions and removals. It was noted that none of the alternative techniques identified in the IPCC expert meeting mentioned in paragraph 26 above are at present sufficiently developed to be used to compile GHG inventories.

28. Participants also recommended that the revised UNFCCC Annex I reporting guidelines provide guidance to Parties that may choose to report any additional information in relation to the use of MLP as refined by the use of higher-tier methods in their estimates of anthropogenic emissions and removals. They also stressed that any additional information provided must be transparent, comprehensive and comparable and must be estimated and reported in accordance with the methodologies and principles of the IPCC good practice guidance.

29. Participants further recommended that reporting guidance included in the revised UNFCCC Annex I reporting guidelines must assist Parties on how to report in a transparent manner with regard to the identification of land use categories and subcategories and the identification of managed land.

30. Participants identified further areas in which the SBSTA may invite the IPCC to undertake further work, including on wetlands, especially on the rewetting and restoration of peatland.

31. Participants recommended that the revised UNFCCC Annex I reporting guidelines provide specific guidance to Parties on how to apply the 2006 IPCC Guidelines when reporting emissions from harvested wood products.

B. Methodological issues not related to land use, land-use change and forestry

32. Participants recognized that a number of Parties use higher-tier methods and models to estimate emissions and removals and that these generally lead to an improvement in accuracy and a decrease in uncertainties of the estimates. With a view to enhancing transparency, participants recommended that the revised UNFCCC Annex I reporting guidelines contain an annex that sets out specific guidance, for example in a form of a checklist, on how to report on the use of higher-tier methods and models and/or facility-level data. Participants agreed that the following items identified during the IPCC expert meeting on the use of models and measurements in GHG inventories provide a basis for developing the annex:

- (a) Information related to models:
 - (i) The basis and type of model;
 - (ii) The application and adaptation of the model;
 - (iii) The main equations and processes;
 - (iv) The key assumptions;
 - (v) The domain of the application;
 - (vi) How the model parameters were estimated;
 - (vii) A description of key inputs and outputs;
 - (viii) The details of calibration and model evaluation;
 - (ix) Uncertainty and sensitivity analysis;
 - (x) The quality assurance and quality control procedures adopted;
 - (xi) References to peer-reviewed literature;
- (b) Information related to facility-level data:
 - (i) The institutional arrangements:
 - The legal basis;
 - The elements covered;
 - The criteria for data selection;
 - Quality assurance and quality control;
 - Confidentiality;
 - (ii) Category-specific:
 - Category emissions;
 - The implied emission factor;
 - The uncertainty;
 - How completeness and time-series consistency are ensured.

33. Participants recommended that Parties provide justification on how tier 3 methods and models better reflect national circumstances and that the use of these methods and models provide more accurate estimates, when compared with estimates from the use of lower-tier methods.

34. Participants agreed that it could be problematic to ensure time-series consistency when implementing higher-tier methods and/or facility-level data, given that current reporting covers a long time series of data for emissions and removals since the base year under the Convention. However, participants acknowledged that the 2006 IPCC Guidelines provide techniques to construct a consistent time series in the event of such difficulties (see paragraph 41 (a)).

35. Participants recommended that the revised UNFCCC Annex I reporting guidelines should allow Parties not to report explanations for recalculations due to rounding identified by CRF Reporter that are beneath a predetermined threshold (still to be determined). However, it was noted that recalculations due to methodological changes, activity data or emission factors, even if resulting in small changes to the estimates, continue to be explained and reported.

36. Participants agreed that the EFDB is a library for emission factors and other parameters and that this database could be a useful tool for the compilers of inventories. Participants acknowledged that the revised UNFCCC Annex I reporting guidelines may include a reference to the EFDB, with clear guidance to Parties on what needs to be reported, for example justification and appropriateness, if a Party chooses to use an emission factor from this database.

C. Methodological issues related to reporting when using the 2006 IPCC Guidelines

37. Participants recommended that Annex I Parties shall continue to report the agriculture and LULUCF sectors separately because of their relevance to national policy and to ensure continuity of reporting under the current UNFCCC Annex I reporting guidelines.

38. Participants further agreed that the separate reporting of agriculture and LULUCF requires an allocation of the revised reporting categories in the 2006 IPCC Guidelines to the agriculture and LULUCF sectors, with a view to ensuring completeness and avoiding duplication in reporting of individual categories and subcategories. This allocation should be considered category by category and may include revisiting the current allocation.

39. Participants also recommended that Annex I Parties should continue reporting emissions of precursor gases.

D. Implications on current UNFCCC Annex I reporting guidelines

40. Participants acknowledged that there are some elements of the annotated outline of the NIR that could be considered for inclusion in the revised UNFCCC Annex I reporting guidelines with a view to streamlining the reporting requirements, for example the provisions of the institutional arrangements or national systems.

41. Participants recommended that the SBSTA explore further the following:

(a) Options to reduce the number of recalculations needed to maintain time-series consistency and whether there is a need to limit the reporting to specific years in the past, for example 1990, 1995 and 2000, and the implications thereof;

(b) Whether there is a need to continue to report potential emissions of fluorinated gases given that the 2006 IPCC Guidelines do not provide any methodology to estimate these emissions;

(c) Options to report indirect CO₂ and N₂O emissions, and if and how these emissions are included in national totals;

(d) The definitions of existing notation keys and the possibility of addressing categories with very low emissions and removals in a practical manner;

(e) Elements from the 2006 IPCC Guidelines, and their reporting tables, that could be used to enhance transparency of the CRF tables.

42. Participants acknowledged that while the current UNFCCC Annex I reporting guidelines need to be revised to reflect the provisions of the 2006 IPCC Guidelines as appropriate, this should be done with a view to maintaining consistency with the current reporting requirements and minimizing the changes to the extent possible. Areas for revision should be identified based on the review of the utility and value of elements contained in the current CRF tables, including additional information tables, implied emission factors, etc.

43. Participants recommended that the secretariat commence work on the draft annotated revised UNFCCC Annex I reporting guidelines and acknowledged that further guidance on this undertaking may be provided by the SBSTA at its thirty-third session.

44. Participants requested that opportunities be provided by the secretariat for technical-level exchanges on the new CRF Reporter software, subject to the availability of resources.
