UNFCCC EXPERT MEETING TO ASSESS EXPERIENCES IN THE USE OF THE REPORTING AND REVIEW GUIDELINES

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Working paper No. 7 (2001): Reporting of land use change and forestry – Possible modifications to sectoral tables of the common reporting format on land-use change and forestry

- Unedited -

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I. INTRODUCTION

A. Mandate

1. By its decision 3/CP.5, the Conference of the Parties (COP) adopted guidelines for the preparation of national communications by Parties included in Annex I to the Convention (Annex I Parties), Part I: UNFCCC reporting guidelines on annual inventories (hereinafter referred to as the "UNFCCC reporting guidelines"). By that same decision, the COP requested the secretariat to prepare a report on the use of those guidelines, and invited Annex I Parties to submit information to the secretariat on experience with using the UNFCCC reporting guidelines, in particular the common reporting format (CRF). That report is to be presented to the Subsidiary Body for Scientific and Technological Advice (SBSTA) for consideration of possible revisions to the guidelines.

2. Parties not using the sectoral background data tables 5.A to 5.D on land-use change and forestry (LUCF) of the CRF were requested by the SBSTA at its tenth session, to specify alternative formats and submit them to the secretariat by 1 July 2001.

B. Background

3. The reporting of inventories by Annex I Parties consist of two parts, the National Inventory Report (NIR) and national inventory data using the CRF. The inventory reporting responds to the requirements in the UNFCCC reporting guidelines and is based on the methods provided in the Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories (hereinafter referred to as the IPCC Guidelines). Provisions for the application of good practices in inventory preparation were included in the UNFCCC reporting guidelines. A report on Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories was released by the IPCC in May 2000. That report, however, does not cover good practice guidance for the land-use change and forestry sector. The IPCC has just launched the development of good practice guidance for land use, land use change and forestry (LULUCF), which is to be completed by December 2003 and is planned to be considered at the 19th session of the SBSTA and the ninth session of the COP.

C. Scope

4. This working paper complements the report on the use of the UNFCCC reporting guidelines on annual inventories (FCCC/SBSTA/2001/5 and Add.1), which was prepared by the secretariat in response to the mandate mentioned in paragraph 1 above. Alternative formats for sectoral background data tables 5.A-D provided by Parties in response to the request from SBSTA and submissions on experience gained using the UNFCCC reporting guidelines are reproduced in document FCCC/SBSTA/2001/MISC.4.

5. Problems encountered by Parties regarding the reporting of LUCF in the CRF are analysed in this paper using mainly the suggestions made by Australia, New Zealand and Sweden on behalf of the European Community and its member States. The relevant information provided

in the NIRs has also been considered. Options and implications of the changes to accommodate the national approaches are given.

6. Experts may wish to recommend one of three options:

(a) leave the CRF unchanged and wait for the results of the IPCC work in LULUCF;

(b) encourage a more specific reporting of disaggregated LUCF data in the NIR and require Parties to back calculate in order to fill in the CRF tables 5.A-D, or

(c) modify the CRF tables on LUCF now and recommend all or some of the suggested detail changes.

7. If experts consider that an improvement of the current CRF tables on LUCF is appropriate at this point in time, this paper might serve as basis for facilitating the discussion on the possible revisions of the UNFCCC reporting guidelines and the CRF with respect to reporting on LUCF. In this case, modifications regarding LUCF reporting would be included as an appendix to the current UNFCCC reporting guidelines until the IPCC has concluded its work on good practice for LULUCF.

8. The options presented in this paper acknowledge the ongoing work of the IPCC on Good Practice Guidance for LULUCF. They do not by any means prejudge, or provide any limitations to, the results of the ongoing development of Good Practice Guidance for LULUCF currently being developed by the IPCC. The proposals and options presented below are not comprehensive. Other proposals and options may exist and could be identified by experts at the expert meeting or by Parties for their consideration at the sixteenth session of the subsidiary bodies.

II. OPTIONS

A. Approach

9. Problems encountered by Parties in using CRF tables 5A-D are presented together with the aspects of the IPCC Guidelines important for transparent and comparable reporting of LUCF. Three main options are presented together with a summary of possible implications. The individual suggestions comprising each of the options are then given together with the specific implications of each suggestion. Suggestions are evaluated with respect to consistency with the IPCC Guidelines, particularly the allocation of emissions and removals to IPCC source category allocation. Finally, text suggestion for the UNFCCC reporting guidelines in relation to the NIR and detailed suggestions for the CRF are presented for the different options.

B. General

10. All Annex I Parties that provided the CRF in their inventory submissions, used the sectoral report for LUCF (table 5 of the CRF) to report emissions and removals estimates from LUCF. Thirteen Parties did not use sectoral background data tables 5A–D, while four Parties only reported notation keys and no data. Several Parties not using CRF tables 5A-D noted the lack of consistency between national methods and the activity data requested in the tables, some do not separate emissions from removals or allocate the emissions and removals to the IPCC

source category allocation. An overview of the use of the CRF tables for LUCF is given in table 1.

Table 1. Overview of the use of the CRF tables for LUCF among Annex I Parties (2001 submissions, as of 30 June 2001).

	CRF Sectoral reporting on LUCF					
Parties	5	5A	5B	5C	5D	Comment
Australia	X					(1990 and 1999)
Austria	X	X				(1990-1999) – no separation of 'emissions' and removals'
Belgium	X					(1998-1999)
Bulgaria	X	X				(1999)
Canada	X	X	X	X		(1991-1999)
Czech Republic	X	X				(1999)
Denmark	X					(1990-1999) Only changes in temperate forests
Estonia	X	X	X	X	X	(1999)
Finland	X					(1990 –1999)
France	X					(1990-1999)
Greece	X	X	X	x	x	(1990 – 1999) No data in 5C and 5D, only notation key
Hungary	X	X	X		X	(1999)
Iceland	x					(1999) notation keys only, no data
Ireland	X	X	x	x	X	(1999) No data in 5B and 5C only notation key
Italy	X	X	X	X	X	(1999)
Latvia	X	X				(1999)
Netherlands	X	x				(1990 – 1999) – no separation of 'emissions' and removals' No data in 5A
Norway	X					(1990 and 1999) no separation of 'emissions' and removals'
New Zealand	X					(1999)
Portugal	X					(1990-1999) no separation of 'emissions' and removals' 1990 extra with different data)
Slovenia	X	X	X	X		(1999)
Spain	X					(1990-1999) no separation of 'emissions' and removals'
Sweden	X					(1990-1999)
Switzerland	X					(1999) no separation of 'emissions' and removals'
UK	X					(1990-1999)
USA	X	x	x	x	x	(1990-1999) No data in 5A, 5B, 5C and 5D only notation key

11. The main reason for the difference between the data available in most countries and the data required in the CRF is that national methods use a different set of activity data, other than the requested information. The current CRF tables 5A-D follow the activity data and aggregation of sources and sinks in the IPCC source category allocation consistent with the IPCC Guidelines. This method is a default methodology relying on average data, but it also encourages performing the calculations using more accurate data when it is available. Back calculations would then have to be done in order to obtain the requested data.

12. The importance of comparable inventories across Parties as well as inventories that are consistent over time have often been stressed by Parties. These aims, together with a focus on avoiding double counting, were important when allocating the different processes giving rise to emissions and removals. The allocation of the different processes causing emissions or removals in the IPCC Guidelines is the following:

5.A Changes In Forest And Other Woody Biomass Stocks includes all aboveground biomass from harvested or managed forests as well as regrowth. In principle it also includes the growth of grass and brush thus including all sinks due to increases in above ground biomass.

5.B Forest And Grassland Conversion includes conversion of existing forest and grassland to other land uses (e.g. agriculture). The IPCC Guidelines further assume, as default, that in conversion of grassland to cultivated land there is no change in above ground carbon stocks, but they encourage Parties that have data to report net fluxes.

5.C Abandonment Of Managed Lands includes only carbon in biomass from abandoned managed land (e.g. cropland and pasture) while changes in soil carbon is included in 5.D Emissions And Removals From Soil.

5.D Emissions And Removals From Soil includes emissions and removals resulting from a change in the organic carbon stock of the soil. The current method in the IPCC Guidelines applies an accounting approach based on estimating soil carbon stocks and areas for the major categories of agricultural land use/management systems.

13. This allocation is largely based on the human activities leading to a change in the carbon stock. IPCC Guidelines recognises that it may sometimes be difficult to decide on the correct allocation. They note that "It is possible that some areas of land can fit the definitions of two categories simultaneously. In this situation the most recent, significant human influence should be used to allocate the land into categories" (IPCC Guidelines, Reference Manual p. 5.9).

14. Consistent allocation of the processes causing emissions and removals and thus sources and sinks between Parties are a prerequisite for comparable inventories. However, in addition to the difficulty noted above, below ground biomass carbon stocks are often not addressed in the IPCC Guidelines. Further elaboration of these source categories in the UNFCCC reporting guidelines may be useful.

15. A key element for comparing inventories based on country specific models is the implied emission factors[1]. The current implied emission factors are following the IPCC source category allocation described above and are calculated on a very aggregated level and thus may be applicable to all Parties. Revising the CRF tables on LUCF may provide the opportunity to calculate implied emission factors on a more disaggregated level. Clear definition of the equation used for the calculations of the implied emission factors in the respective CRF tables may then be useful.

[1] In this paper, the term "implied emission factor" refers to both implied emission factor and carbon uptake factor, as appropriate.

C. Summary of possible implications

16.

Option	Summary of possible Implications
1. No modification regarding LUCF in the NIR and the CRF now, and wait for the results of the IPCC work in LULUCF.	Parties not using CRF-tables 5A-D will continue to report the LUCF background data in the NIR using individual reporting formats. These formats vary in level of detail and are developed on the basis of available data and national methodology best suited to the national circumstances, while still consistent with the IPCC Guidelines. Automated processing of background data and comparisons across Parties will not be possible.
2. Encourage a more specific reporting of disaggregated LUCF data in the NIR and require Parties to back calculate in order to fill in the CRF tables 5.A-D.	The Parties that do not report background data in the CRF may begin such reporting. Automated processing of background data and comparisons across Parties will not be possible. Implied emission factors may be calculated on the level of the IPCC source category allocation 5 A-D, thus enabling automated data processing and comparison across countries. Further definition of the IPCC source category allocation may be included in the UNFCCC reporting guidelines to increase consistency among Parties.
3. Modify the CRF tables on LUCF now and recommend all or some of the suggested detail changes	The modifications to the CRF tables on LUCF will enable reporting of activity data commonly used in more advanced methods (e.g. stemwood volume). Many Annex I Parties use such models (though some may still have difficulty providing emissions separate from removals or the separation between the different IPCC source category allocation). The provisions for reporting activity data when using default methods will remain and thus there will be no change for those Parties using the current CRF tables on LUCF. This option will enable automated processing of the background data and comparison among Parties. Such data compilation could be useful for the IPCC in developing the Good Practice Guidance for LULUCF and for Parties in developing their LUCF inventory. For Parties also providing activity data that are used in IPCC default methods (e.g. area of forest), implied emission factors may be calculated, thus also allowing automated data processing and comparisons among all Parties.

	Further definition of the IPCC source category allocation may be included in the UNFCCC reporting guidelines to increase consistency and comparability among Parties.

Note: In deciding any changes to the current way of reporting now or after the introduction of the IPCC good practice guidance for this sector, the need of recalculations should be considered for ensuring consistency of the time-series. This may make the reporting more complex and costly.

D. Detailed suggestions to the UNFCCC reporting guidelines in relation to the NIR

17. The suggestions below apply to the general options 2 and 3 presented in this paper. The text is suggested to be included as an appendix to the current UNFCCC reporting guidelines until the IPCC has concluded its work on good practice on LUCF.

Suggested text for the UNFCCC reporting guidelines in relation to the NIR

Definitions
The following source category allocation should be used for reporting LUCF:

A. Changes In Forest And Other Woody Biomass Stocks includes all aboveground biomass from forest harvested, natural loss and fires in managed forest. Regrowth of trees, grass and brush are also included in this category thus including all sinks due to increases in above ground biomass. Emissions from decay of harvest residues and slash, and all above and below ground biomass should be included in this category.

B. Forest And Grassland Conversion includes all human induced conversion of existing forest and grassland to other land uses (e.g. agriculture). Loss of biomass stock due to decay, both above and below ground leading to direct emissions of CO2, and burning on and off site are included.

C. Abandonment Of Managed Lands includes all carbon loss and gain in biomass, above and below ground on abandoned managed land (e.g. cropland and pasture). Changes in soil carbon is included in 5.D Emissions And Removals From Soil.

D. Emissions And Removals From Soil includes all emissions and removals resulting from a change in the organic carbon stock of the soil. All dead organic material including dead roots is included in the soil carbon stock. Changes in carbon stock due to human activities (e.g. forest management, land management or land use change) are included in this category.

- Parties should report according to the source category allocation defined above. (To be elaborated further)
- Parties should make every effort to report emissions and removals from LUCF separately. (To be elaborated further)

E. Detailed suggestions to the CRF

The section below contains a description of implications of the detailed suggestions for CRF tables 5 and 5A-D on LUCF.

Suggestions and implications for CRF tables on LUCF

CRF Table 5

18.

Suggestion	Implications
Remove shading to allow reporting of CO_2 removals in IPCC source category 5.B from increasing carbon stock associated with Forest And Grassland Conversion.	The suggestion is consistent with the allocation of emissions and removals in the IPCC source category allocation. However, if the land use change was not the last human influence on the land but rather some activity related to forest then the removal should be reported under IPCC source category 5.A. This opens an option to report in the category "other" under source category 5.A. It may be useful to define the source category allocation in the UNFCCC reporting guidelines as suggested above.
Related to the above is the suggestion to remove footnote 2 demanding removals to be reported in IPCC source category 5.D, Emission and Removal from Soil.	This footnote is not consistent with the IPCC source category allocation where net change in carbon stock is recommended. The change is consistent with the suggestion to remove the shading and will require Parties that have reported according to the footnote to reallocate their emissions for the whole time series of LUCF reporting. Changes in soil carbon stock are however allocated to IPCC source category 5.D in the IPCC Guidelines. It may be useful to define the source category allocation in the UNFCCC reporting guidelines as suggested above.

CRF Table 5. A

19.

Suggestion	Implication
Option a Remove the tree species pre-filled in the table and request Parties to specify the relevant biome types	This may limit the possibility for automated data processing and comparison of implied emission factors to the level of table 5.A as Parties may use different terms and enter different level of disaggregation. However more detailed information according to

and then enter appropriate tree species. Option b Include tree species categories as currently defined in table 5.A and encourage Parties to specify the specific tree specie within each category.	the national circumstances may be obtained. This option will maintain the flexibility from the suggestion above but still enable calculation and comparison of implied emission factors at the level of the pre-filled species. It will enable automated compilation of summary data used by Parties. The task of filling the tables will increase slightly. It will also increase the amount of tables, as each of the three biomes may need one sheet. (See suggested table 5.A in the annex to this paper).

20.

Suggestion	Implication
 <u>Option a</u> Include plantations in the term "managed forest" and thus include it in all three biome types. <u>Option b</u> Use the standardised activity classes "plantations, other harvested forest and other (specify) for both tropical and temperate forest.	. This option is consistent with the suggestion to delete the pre-filled tree species above. It will not be possible to calculate implied emission factors specifically for plantations. This will allow calculation of implied emission factors for the three standardised activity classes. Further clarification of the term "plantations" may be included in the UNFCCC reporting guidelines. (See suggested table 5.A in the annex to this paper).

21.

Suggestion	Implication
Provide for reporting of stemwood over bark as activity data and also the conversion factors to dry weight wood to total tree biomass increment and to carbon density.	Several Parties use a method based on stemwood as activity data. Including an option to report this will thus facilitate the use of the CRF. Some Parties provide the conversion factors in the NIR, and including them in the CRF will increase transparency and facilitate automated data processing and comparison. Several Parties do not report emissions and removals separately in the CRF. Most of these Parties may however have these data available. Calculation of the implied emission factors may then be

	obtained through a back calculation. Applying back calculations is not uncommon for Parties in order to obtain the data required in the CRF and calculation of implied emission factors.

22.

Suggestion	Implication
Area of forest should be that of the FAO definition or by national definitions of forest area.	Using the FAO definition provides consistency in the reporting among Parties and increases the comparability of the implied emission factors. Parties not using the FAO definition may be requested to provide data according to the FAO definition in addition to the national data.

23.

Suggestion	Implication
Total growth increment may also be reported in Gg CO_2 .	Facilitates comparison with other sources and sinks given in the unit CO_2.

24.

Suggestion	Implication
Report the type of data collected for harvested wood and report the conversion factors.	Including them in the CRF will increase transparency and facilitate automated data processing and comparison.

25.

Suggestion	Implication
Include reporting of harvesting residues	Residues from commercial harvest will often be included in the expansion factor. Care must be taken to avoid double counting.

26.

Suggestion	Implication
Report natural losses including fires without land use change.	If biomass loss from fires is included then the regrowth in those areas must be included to obtain full accounting. Fires will also generate a small amount of emissions of non-CO_2 trace gases.

27.

Suggestion	Implication
Make the signs for the net annual carbon uptake/removal consistent with the other sheets in the CRF.	May require a change in the sectoral background data tables.

28.

Suggestion	Implication
Enable carbon uptake by post burning regrowth to be reported separately.	This is consistent with the IPCC source category allocation. It may be useful to clarify that the implied emission factor should be calculated using the net emission or removal.

29.

Suggestion	Implication
Enable reporting of decay of below ground biomass	This is consistent with the IPCC source category allocation.
and soil organic matter to be reported in table 5 B.	This is however not consistent with the IPCC source category allocation. Several Parties will have to reallocate their soil emissions to the other categories.

30.

Suggestion	Implication
Remove reporting of CH_4 and N_2O.	The emissions of the trace gases calculated using IPCC default parameters are about 12 % for methane and 7 % for nitrous oxide of the carbon released from open field burning. Given the GWP values of 21 and 310 respectively, these emissions may be of the same order of magnitude as the carbon dioxide.

CRF Table 5 D

31.

Suggestion	Implication
Both emissions and removals from soils should be allocated under IPCC source category 5.A Forest, 5.B Grasslands and 5.C Abandonment of Managed Lands. This IPCC source category should thus be for information only.	This is not consistent with the IPCC source category allocation. Several Parties may have to reallocate their soil emissions to the other categories. It may be useful to define the source category allocation in the UNFCCC reporting guidelines as suggested above.

32.

Suggestion	Implication
Combine the current tables and expand the amount of data reported to accommodate the Parties that do not use the IPCC default method (add “previous management system”, “time to reach equilibrium” and associated emissions of CH4 and N2O and	This would increase the amount of data to be reported and may increase transparency. Enables compilation of reported data that may be useful for the IPCC work on developing Good Practice Guidance for LULUCF.

corresponding implied emission factors).	

33.

Suggestion	Implication
Remove predefined source/sink categories.	This may limit the possibility for automated processing and comparison of implied emission factors for soil carbon stock to the level of table 5 as Parties may use different terms and enter different level of disaggregation. However, more detailed information regarding the national circumstances may be obtained.

CRF Tables 5A-D

34.

Suggestion	Implication
Remove first part of Note requiring only Parties using default methodology to fill in CRF tables 5A-D and provide further clarifications to avoid double counting between the IPCC categories.	It may be useful to include this in the UNFCCC reporting guidelines in relation to the NIR.

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Annex:

Suggested tables 5.A-D on land-use change and forestry