UNITED NATIONS

UNFCCC Framework Convention on Climate Change

Distr.
GENERAL

FCCC/SBSTA/2003/INF.11
3 November 2003

ENGLISH ONLY

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE
Nineteenth session
Milan, 1–9 December 2003
Item 4 (d) of the provisional agenda

METHODOLOGICAL ISSUES

GOOD PRACTICE GUIDANCE AND OTHER INFORMATION ON LAND USE, LAND-USE CHANGE AND FORESTRY

Draft common reporting format for land use, land-use change and forestry

Note by the secretariat

Summary

The Intergovernmental Panel on Climate Change is expected to submit its report *Good Practice Guidance for Land Use, Land-Use Change and Forestry* for consideration by the Conference of Parties at its ninth session. This report will introduce improved methodologies and new reporting categories for the land use, land-use change and forestry (LULUCF) sector. In accordance with a request by the Subsidiary Body for Scientific and Technological Advice (SBSTA), at its eighteenth session, and in order to apply good practice guidance for the LULUCF sector, this document includes draft tables of a common reporting format for the LULUCF sector for the purpose of reporting annual greenhouse gas information under the Convention and the Kyoto Protocol. The SBSTA, at its nineteenth session, may wish to consider information contained in this document and to agree upon the reporting and related tables for the LULUCF sector.

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I. INTRODUCTION

A. Mandate

1. Article 4 of the Convention requires Parties to develop, periodically update, publish and make available to the Conference of the Parties (COP), in accordance with Article 12 of the Convention, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases (GHGs) not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the COP.

2. The COP, by its decisions 3/CP.5 and 6/CP.5, adopted guidelines for the preparation of national communications, including annual GHG inventories, and guidelines for the technical review of GHG inventories by Parties included in Annex I to the Convention. The COP, by its decision 18/CP.8, adopted the revised "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories" (hereinafter referred to as the UNFCCC reporting guidelines) contained in document FCCC/CP/2002/8.

3. The COP, by its decision 11/CP.7, paragraph 3 (b), invited the Intergovernmental Panel on Climate Change (IPCC) to prepare a report on good practice guidance and uncertainty management relating to the measurement, estimation, assessment of uncertainties, monitoring and reporting of net carbon stock changes and anthropogenic GHG emissions by sources and removals by sinks in the land use, land-use change and forestry (LULUCF) sector (FCCC/CP/2001/13/Add.1). By the same decision, paragraph 3 (a), the COP also invited the IPCC to elaborate methods to estimate, measure, monitor and report changes in carbon stocks and anthropogenic GHG emissions by sources and removals by sinks resulting from LULUCF activities under Article 3, paragraphs 3 and 4, and Articles 6 and 12 of the Kyoto Protocol.

4. Draft decision -/CMP.1 (*Land use, land-use change and forestry*), paragraph 3, attached to decision 11CP.7 of the Marrakesh Accords, states that, for the purposes of the Kyoto Protocol, anthropogenic GHG emissions by sources and removals by sinks shall be accounted for in accordance with the annex to that draft decision, and reported in annual inventories and reviewed in accordance with relevant decisions relating to Articles 5, 7 and 8 of the Kyoto Protocol, and in accordance with the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred as 1996 IPCC Guidelines), any future elaboration of these guidelines, or parts of them, and any good practice guidance on land-use change and forestry in accordance with relevant decisions of the COP and the Conference of Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP).

5. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its eighteenth session, requested the secretariat to prepare, in consultation with the IPCC, a draft common reporting format (CRF) for LULUCF for consideration at its nineteenth session. The proposal should be based, inter alia, on the work of the IPCC on good practice guidance for LULUCF and experiences gained by Parties from using the CRF for the land-use change and forestry (LUCF) sector (FCCC/SBSTA/2003/10, para. 26 (b)).

B. Scope of the note

6. The IPCC is developing a methodology report entitled *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as good practice guidance for LULUCF). The requests to the IPCC, referred to in paragraphs 3 (a) and (b) of decision 11/CP.7, are closely linked, and therefore the IPCC is responding to them by providing a single report. The report will provide guidance relevant to the Convention and the Kyoto Protocol, while paying attention to the need to ensure consistency with the 1996 IPCC Guidelines. The IPCC is expected to consider and accept the report at

its twenty-first session, which will be held from 3 to 7 November in Vienna, Austria. Final versions of the reports are expected to be available for consideration by the SBSTA at its nineteenth session.[1]

7. A group of LULUCF and GHG inventory experts assisted the secretariat in the preparation of the draft tables of the CRF for LULUCF: Ms. Kathryn Bickel (USA), Ms. Dominique Blain (Canada), Ms. Thelma Krug (Brazil), Mr. Nijavalli H. Ravindranah (India), Mr. Risto Sievänen (Finland) and Mr. Zoltan Somogyi (Hungary). Ms. Riitta Pipatti and Mr. Leandro Buendia from the Technical Support Unit of the IPCC National Greenhouse Gas Inventories Programme also contributed to the work. A two-day meeting was held in Bonn on 22 and 23 September 2003 to obtain technical advice and expert inputs on draft tables of the CRF.

8. Annex I includes draft tables of the CRF for the LULUCF categories[2] for the purposes of reporting emissions and removals by sinks under the Convention, based on the forthcoming good practice guidance for LULUCF and the current tables of the CRF. The annex includes a sectoral reporting table for LULUCF and sectoral background data tables for forest land, cropland, grassland, and conversion of forest land and grassland to wetlands, settlements and other land. It does not provide specific reporting requirements on harvested wood products; issues relating to harvested wood products will be considered at SBSTA 19 under agenda item 4 (e). Annex IV includes draft tables of the CRF for LULUCF activities[3] for the purposes of the Kyoto Protocol. It contains a summary table and background data tables for activities under Article 3, paragraphs 3 and 4. It does not cover possible additional reporting requirements relating to LULUCF activities under Article 6 (joint implementation) and Article 12 (clean development mechanism) of the Protocol.

C. Possible action by the SBSTA

9. The SBSTA may wish to take note of and consider the information in this document and in the good practice guidance for LULUCF (especially policy relevant points identified in Chapter 1.7). It may wish to agree upon:

(a) Tables of the CRF for LULUCF under the Convention, including technical changes required to other tables of the CRF following the adoption of the CRF for LULUCF;

(b) Additional guidance on sectoral reporting on LULUCF categories to be included in the national inventory report;

(c) The reporting year in which Parties are requested to start applying revised tables of the CRF for LULUCF (e.g. Annex I Parties to submit information in 2005 for the inventory year 2003);

(d) Tables of the CRF for LULUCF activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, and additional guidance as appropriate;

(e) Draft decisions, as appropriate, on the above topics for adoption by the COP and, as appropriate, the COP/MOP.

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[1] It is anticipated that electronic copies of the report will be available on the IPCC/NGGIP web site (http://www.ipcc-nggip.iges.or.jp) in the second half of November 2003.

[2] For the purposes of this note, the term land use, land-use change and forestry (LULUCF) categories is used in the context of draft tables of the common reporting format under the Convention.

[3] For the purposes of this note, the term land use, land-use change and forestry (LULUCF) activities is used in the context of draft tables of the common reporting format under the Kyoto Protocol.

II. BACKGROUND INFORMATION ON UNFCCC REPORTING GUIDELINES AND ANNUAL GREENHOUSE GAS INVENTORIES

A. General framework

10. The UNFCCC reporting guidelines to Annex I Parties on annual inventories cover the estimation and reporting of GHG emissions and removals in both annual GHG inventories and inventories included in national communications. The objectives of these reporting guidelines are to assist Parties in meeting their commitments, to facilitate the process of considering annual national inventories, including the preparation of technical analysis and synthesis documentation, and to facilitate the process of verification, technical assessments and expert review of the inventory information. The annual inventory submission shall consist of a national inventory report (NIR) and the common reporting format (CRF) as specified in those guidelines. Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention (non-Annex I Parties) are more generic, providing more flexibility for those Parties compared to requirements for Annex I Parties.

B. National inventory report

11. An NIR submitted by an Annex I Party should contain sufficiently detailed information to enable the inventory to be reviewed. It should include descriptions, references and sources of information on the specific methodologies, assumptions, emission factors and activity data used in compiling the NIR, as well as the rationale for their selection. The NIR should also include a description of key sources; an indication of possible double accounting or non-accounting; information on uncertainties, on recalculations, on changes of methodologies, sources of information and assumptions, and on quality assessment and quality control; and a description of the institutional arrangements for inventory preparation.

12. Paragraph 41 (d) of the UNFCCC reporting guidelines states that the NIR should include background data used to estimate emissions and removals from the LUCF sector to enhance transparency. The footnote to that paragraph notes that the SBSTA may wish to consider this issue when guidance on good practice guidance for the LULUCF sector has been completed by the IPCC and, as appropriate, expand that subparagraph in any subsequent revision of these guidelines.

13. Annex I of the guidelines provides a structure of the NIR. Chapter 7 of the NIR covers LUCF, but sector-specific guidance is not provided. Appendix A to this annex provides guidance on additional information: the sectoral part of the NIR should indicate whether CO_2 from agriculture soils has been estimated, and if so where it has been accounted for – either in the agriculture sector (category 4.D Agricultural soils) or in the LUCF sector (category 5.D CO_2 emissions and removals from soils).

C. Common reporting format

14. The CRF, adopted as annex II to the UNFCCC reporting guidelines, is a standardized format for reporting estimates of GHG emissions and removals and other inventory information. It is an electronic format, designed to facilitate comparison of inventory data and trends among Annex I Parties. Explanation of qualitative information should mainly be provided in the NIR rather than in the CRF tables, and should be cross-referenced to the specific section of the NIR. The CRF consists of summary, sectoral and trend tables for all GHG emissions and removals; sectoral background data tables for reporting activity data and emission estimates as well as calculation of implied emission factors;[4] and tables for reporting key source categories, recalculation and completeness of the inventory.

[4] Implied emission factors are top-down ratios between an Annex I Party's emission estimates and activity data at the level of aggregation given by the tables. These factors are intended solely for purposes of data comparison. They will not necessarily be the emission factors actually used in the original emission estimate, unless this was a simple multiplication based on the same aggregate activity data used to calculate the implied emission factor.

15. The CRF includes tables for energy, industrial processes, solvent and other product use, agriculture, land-use change and forestry and waste sectors as well as summary and other tables. Sectoral background data for agriculture are reported in the following tables: enteric fermentation (table 4.A), CH_4 emissions from manure management (table 4.B (a)), N_2O emissions from manure management (table 4.B (b)), rice cultivation (table 4.C), agricultural soils (table 4.D), prescribed burning of savannas (table 4.E) and field burning of agricultural residues (table 4.F).

16. The CRF includes a sectoral report for LUCF (table 5) and sectoral background data tables for changes in forest and other woody biomass stocks (table 5.A), forest and grassland conversion (table 5.B), abandonment of managed lands (table 5.C) and CO_2 emissions and removals from soils (table 5.D). The UNFCCC reporting guidelines allow Parties to choose to report CO_2 emissions and removals from agricultural soils either in the agriculture sector, under 4.D Agricultural soils, or in the LUCF sector under 5.D CO_2 emissions and removals from soils. The good practice guidance for LULUCF provides guidance on estimating CO_2 emissions from agricultural soils and, therefore, annexes I and II to this document assume that these emissions are to be reported under the LULUCF.

D. Reporting LULUCF information in the context of the Kyoto Protocol

17. The reporting of LULUCF activities under the Kyoto Protocol has requirements additional to those for reporting the LULUCF category under the Convention. The annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), attached to decision 11/CP.7, is entitled "Definitions, modalities, rules and guidelines relating to land use, land-use change and forestry activities under the Kyoto Protocol", and contains definitions relevant for Article 3, paragraphs 3 and 4, of the Kyoto Protocol, including definition of the terms forest, afforestation, reforestation, deforestation, forest management, cropland management, grazing land management and revegetation. The annex to the draft decision, in chapters B, C and G, also specifies the accounting rules for these activities, some of which have been included within the guidelines for reporting information under Article 7 of the Kyoto Protocol.

18. Reporting requirements relevant for LULUCF activities are contained in decisions 19/CP.7, for the report for the establishment of assigned amounts, and 22/CP.7, for the reporting of supplementary information under Article 7, paragraph 1, of the Kyoto Protocol. These reporting requirements derive from draft decision -/CMP.1 (*Land use, land-use change and forestry*), and include:

(a) The geographical location of the boundaries of land that encompass units of land subject to activities under Article 3, paragraph 3, of the Kyoto Protocol, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol;[5]

(b) Information on anthropogenic GHG emissions by sources and removals by sinks for all the geographical locations referred to in paragraph 18 (a) above;

(c) Specific information relating to the rules of accounting for anthropogenic GHG emissions by sources and removals by sinks in accordance with decision 11/CP.7. Paragraph 4 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*) states that, "for the first commitment period, debits resulting from harvesting during the first commitment period following afforestation and reforestation since 1990 shall not be greater than credits accounted for on that unit of land".

19. The reporting requirements for LULUCF under the Kyoto Protocol imply the need to expand the national GHG inventory to contain information relating to activities under Article 3, paragraph 3, of the Kyoto Protocol and elected activities under Article 3, paragraph 4. Annex IV to this document includes

[5] There exists a requirement for separating the information of those units of land subject to activities under Article 3, paragraph 3, of the Kyoto Protocol, which would otherwise be included in lands subject to elected activities under Article 3, paragraph 4.

proposed reporting tables for anthropogenic GHG emissions by sources and removals by sinks in the context of the Kyoto Protocol.

III. IPCC GOOD PRACTICE GUIDANCE FOR LAND USE, LAND-USE CHANGE AND FORESTRY

A. Structure of the report

20. The IPCC good practice guidance for LULUCF is expected to facilitate the reporting of national GHG inventories under the Convention and the Kyoto Protocol.[6] The report will be the result of about 18 months of work by a group of IPCC experts and the IPCC National Greenhouse Gas Inventories Programme (IPCC-NGGIP). The preparation of the report included two rounds of government and expert comments.

21. Consistent with the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as good practice guidance 2000), the good practice guidance for LULUCF will define inventories that "contain neither over- nor under-estimates so far as can be judged, and in which uncertainties are reduced so far as is practicable"; it will comprise five chapters and a glossary:

(a) Chapter 1: Overview;

(b) Chapter 2: Basis for consistent representation of land areas;

(c) Chapter 3: LUCF sector good practice guidance;

(d) Chapter 4: Supplementary methods and good practice guidance arising from the Kyoto Protocol;

(e) Chapter 5: Cross-cutting issues.

22. The good practice guidance for LULUCF will provide guidance relating to changes in carbon stocks and anthropogenic GHG emissions by sources and removals by sinks including: choice of estimation method, including choice of emission factors, other parameters and activity data; quality assurance and quality control procedures; data and information to be documented, archived and reported; and quantification of uncertainties at the source or sink level and for the inventory as a whole. The report will also provide decision trees, default values for, inter alia, growth rates, biomass expansion factors, carbon contents in biomass and others, equations, and reporting tables that will ease the compilation of LULUCF-related information.

23. Finally, the good practice guidance for LULUCF will extend the methods to identify key categories,[7] as contained in good practice guidance 2000, to the LULUCF sector. The good practice guidance for LULUCF will define a key category as "one that is prioritized within the national inventory because its estimate has a significant influence on a country's total inventory of direct GHGs in terms of the absolute level of emissions or removals or the trend, or both".

B. Consistent representation of land areas

24. Chapter 2 of the good practice guidance for LULUCF will provide guidance on the choice of methods to identify land areas within six broad land categories. It will introduce three approaches for

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[6] Information on the report is based on the draft report submitted for government consideration prior to the IPCC Plenary. The draft report is available on the IPCC/NGGIP web site (http://www.ipcc-nggip.iges.or.jp).

[7] The term "key category", instead of "key source" as in the good practice guidance 2000, will be used by the good practice guidance for LULUCF due to the nature of LULUCF activities, which can be sources or sinks of GHGs. Whenever the term "key category" is used in the report, it will refer to both sources and sinks.

adequate, consistent, complete and transparent representation of lands remaining within a land category as well as for lands converted to another land category. The six land categories will be:

(a) **Forest land**, including all forest and wooded land;

(b) **Cropland**, including arable and tillage lands, and agroforestry land if not included in forest land category;

(c) **Grassland**, including rangelands, pastures and all grasslands that are not considered croplands or do not meet the definition of forest;

(d) **Wetlands**, including all lands that are saturated by water during part or all of the year, but that are not included in other categories;

(e) **Settlements**, including developed land, such as land for transportation infrastructure and human settlements;

(f) **Other**, which may include bare soil, rock, natural lakes, rivers, ice and others.

25. Chapter 2 will conclude with the description of methods to develop land-use databases, including the use of existing data, sampling methods and remote sensing.

C. Good practice guidance for the LUCF sector

26. Chapter 3 of the good practice guidance for LULUCF will describe the methodologies for estimating, measuring and reporting changes in carbon stocks and anthropogenic GHG emissions by sources and removals by sinks relevant to the Convention. It will focus on changes in carbon stocks and emissions occurring in the land categories identified through the application of the approaches described in chapter 2. It will also introduce three tiers for the estimation and measurements; choice of tier will depend on national circumstances. Tier 1 is considered as a base method that will allow countries with limited resources to provide GHG information through the use of default values provided in the 1996 IPCC Guidelines and in the good practice guidance for LULUCF. Tier 2 will use the same methodology but it will require the use of country-specific values for activity data and emission factors. Tier 3 will require the use of more sophisticated, country-specific inventory methods and models. Parties should use methods that provide the highest levels of certainty, while using the available resources as efficiently as possible and taking into account whether the category is a key category.

27. The methodologies in chapter 3 are organized by land-use categories, by carbon pools and non-CO_2 gases, and by tier. Guidance will be provided for each category for lands that have not changed category (for example, forest land remaining forest land), and for lands that have changed category (for example, cropland converted into forest land). Guidance will correspond to choice of methods, choice of emission/removal factors, activity data and uncertainty assessment for all relevant carbon pools in each category. The carbon pools will include above-ground biomass and below-ground biomass grouped as "living biomass", litter and dead wood grouped as "dead organic matter", and soil organic matter.[8]

28. In addition, chapter 3 will provide guidance for completeness, for the development of consistent time series, for uncertainty assessment, and for inventory quality assurance and quality control. The methods described will preserve the basic methodological approaches of the 1996 IPCC Guidelines (e.g. to multiply the activity data by a carbon stock coefficient or emission factor).

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[8] These pools correspond to those defined for LULUCF activities under Article 3, paragraph 3 and 4, of the Kyoto Protocol (annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), paragraph 21.

29. Further information will be provided in appendices and annexes, for example on harvested wood products, non-CO_2 emissions from drainage and rewetting of forest soils, wetlands, settlements, estimation methodologies, biomass default tables, and reporting tables and worksheets.

D. Supplementary methods arising from the Kyoto Protocol

30. Chapter 4 of the good practice guidance for LULUCF will describe supplementary methods and good practice guidance associated with LULUCF activities under Article 3, paragraphs 3 and 4, and Articles 6 and 12 of the Kyoto Protocol. It will provide general guidance for the categorization of land under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, in particular on the treatment of changes in land uses occurring within a commitment period, and on the relationship of these activities to the national GHG inventory.

31. Guidance will be provided to identify land subject to activities under Article 3, paragraphs 3 and 4, namely, for afforestation, reforestation, deforestation, forest management, cropland management, grazing land management and revegetation. The guidance will cover the estimation of the changes in carbon stocks and non-CO_2 GHG emissions in the identified lands, building on the methodologies in chapter 3 of the report. Reporting tables and other guidance will be included to help Parties in the reporting of supplementary information in the context of the Kyoto Protocol.

32. Technical information relating to projects will be contained in a separate section of chapter 4 and will be limited to the estimation and measurement of changes in carbon stocks and anthropogenic GHG emissions by sources and removals by sinks resulting from project activities. This section will include supporting methods in relation to the project boundaries, on the measurement and monitoring of changes in carbon stocks and non-CO_2 gases, and on quality assurance and quality control.

E. Cross-cutting issues

33. Chapter 5 of the good practice guidance for LULUCF will address cross-cutting issues in the context of national GHG inventories. It will provide good practice guidance for the following:

(a) **Uncertainty assessment:** good practice guidance and methods for identifying and quantifying uncertainties including information on how to use and apply the information contained in the good practice guidance 2000 to the LULUCF sector;

(b) **Sampling:** good practice guidance on sampling (given that data for the LULUCF sector are usually obtained from surveys), in particular for the planning of sample surveys and for the use of data from these surveys in order to estimate and report anthropogenic GHG emissions and removals;

(c) **Key category analysis:** guidance on how to identify key categories, following tiers consistent with those included in good practice guidance 2000 for the same purposes. The recommended level of aggregation for identifying key categories will follow the elaboration of categories in chapter 3;

(d) **Quality assurance and quality control (QA/QC):** more information on QA/AC methods included in the good practice guidance 2000 that would be needed for the LULUCF sector. Guidance will be provided for consistent representation of land areas, for the inventory and for supplementary information in relation to the Kyoto Protocol. The section will describe the elements needed for QA/QC including the responsible agency, QA/QC plans, general QC procedures, source- or sink-specific QC procedures, QA review procedures, and reporting, documentation and archiving procedures;

(e) **Time series consistency:** the need for time series consistency derives from the importance of comparable information on trends of GHG emissions when an inventory is produced with different data sources and methodologies. Chapter 5 will provide guidance on when and how to undertake recalculations;

(f) **Verification:** descriptions of approaches to verifying the reliability and accuracy of national GHG inventories, and practical recommendations for verifying and making inventories, some specific guidance in relation to the Kyoto Protocol, and some reporting and documentation issues (e.g. which information to verify in relation to activities and carbon pools).

F. Relationship to the 1996 IPCC Guidelines and draft CRF for LULUCF

34. The SBSTA, at its fifteenth session, encouraged the IPCC to ensure that any elaboration of, or change to, the reporting of categories in chapter 5 of the 1996 IPCC Guidelines allows information reported using the good practice guidance to be compared with previous inventory reporting under the Convention.[9] The need for consistency of the good practice guidance for LULUCF with the 1996 IPCC Guidelines arises from Parties' use of these guidelines for the purposes of preparing national communications and GHG inventories under the Convention. According to the good practice guidance for LULUCF, this consistency will be assured in three main ways:

(a) Source and sink categories addressed by good practice guidance for LULUCF can be traced back to categories in the 1996 IPCC Guidelines;

(b) Good practice guidance for LULUCF uses the same functional forms of the equations used by the 1996 IPCC Guidelines;

(c) Good practice guidance for LULUCF allows for the correction of any error or deficiency identified in the 1996 IPCC Guidelines.

35. Good practice guidance for LULUCF will introduce new inventory categories based on the six land categories. The estimation, measurement, monitoring and reporting of changes in carbon stocks and anthropogenic GHG emissions by sources and removals by sinks will be carried out for these new categories. Guidance on wetlands and settlements will be included in appendices.

36. Annex I to this document includes draft tables of the CRF for LULUCF. These draft tables include new inventory categories based on the 1996 IPCC Guidelines, on the UNFCCC reporting guidelines on annual GHG inventories and on good practice guidance for LULUCF. The relationship between these new inventory categories and the categories included both in the 1996 IPCC Guidelines and in the UNFCCC reporting guidelines on annual GHG inventories is illustrated in table 1.

[9] FCCC/SBSTA/2001/8, paragraph 29 (d).

Table 1. Relationship between land-use categories in the good practice guidance for LULUCF, inventory categories in the 1996 IPCC Guidelines and in the UNFCCC reporting guidelines on annual inventories, and new inventory categories in draft CRF for LULUCF (annex I)

Final land use[a] / Initial land use	Forest land		Cropland		Grassland		Wetlands		Settlements		Other land	
	1996 IPCC Guidelines	Draft CRF for LULUCF	1996 IPCC Guidelines	Draft CRF for LULUCF	1996 IPCC Guidelines	Draft CRF for LULUCF	1996 IPCC Guidelines	Draft CRF for LULUCF	1996 IPCC Guidelines	Draft CRF for LULUCF	1996 IPCC Guidelines	Draft CRF for LULUCF
Forest land	5.A	5.A.1	5.B 5.D	5.B.2.1	5.B, 5.D	5.C.2.1	5.B	5.D.1.1	5.B	5.D.1.2	5.B	5.D.1.3
Cropland	5.A, 5.C, 5.D	5.A.2.1	5.A 5.D	5.B.1	5.C, 5.D	5.C.2.2	5.E	5.E	5.E	5.E	5.E	5.E
Grassland	5.A, 5.C, 5.D	5.A.2.2	5.B 5.D,	5.B.2.2	5.A, 5.D	5.C.1	5.B	5.D.2	5.B	5.D.2	5.B	5.D.2
Wetlands	5.A, 5.C, 5.D	5.A.2.3	5.D	5.B.2.3	5.C, 5.D	5.C.2.3	5.A, 5.E	5.E	5.E	5.E	5.E	5.E
Settlements	5.A, 5.C, 5.D	5.A.2.3	5.D	5.B.2.3	5.C, 5.D	5.C.2.3	5.E	5.E	5.A	5.E	5.E	5.E
Other land	5.A, 5.C, 5.D	5.A.2.3	5.D	5.B.2.3	5.C, 5.D	5.C.2.3	5.E	5.E	5.E	5.E	5.A	5.E

Note: The inventory categories in the 1996 IPCC Guidelines and in UNFCCC reporting guidelines on annual inventories are: 5.A Changes in Forest and Other Woody Biomass Stocks; 5.B Forest and Grassland Conversion; 5.C Abandonment of Managed Lands; 5.D Emissions and Removals from Soils, and 5.E Other.

Source: Adapted from table 3.1.1 of the good practice guidance for LULUCF.

[a] Final land use refers to the reporting year.

Annex I

Draft tables of the common reporting format for the land use, land-use change and forestry categories for reporting under the Convention

TABLE 5 SECTORAL REPORT FOR LAND USE, LAND-USE CHANGE AND FORESTRY
(Sheet 1 of 1)

Country
Year
Submission

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions[2]	CO_2 removals[2]	Net CO_2 emissions/ removals[2]	CH_4	N_2O	NO_x	CO
	(Gg)						
Total Land Use, Land-Use Change and Forestry							
A. Forest land (sub-total)							
1. Forest land remaining forest land							
2. Land converted to forest land							
B. Cropland (sub-total)							
1. Cropland remaining cropland							
2. Land converted to cropland							
C. Grassland (sub-total)							
1. Grassland remaining grassland							
2. Land converted to grassland							
D. Forest land and grassland converted to wetlands, settlements or other land (sub-							
1. Forest land converted to wetlands, settlements or other land							
2. Grassland converted to wetlands, settlements or other land							
E. Other (please specify)[1]							
Wetlands							
Settlements							
Other land							
Other							

[1] May include other non-specified sources and sinks. Please specify.

[2] Note that according to the 1996 IPCC Guidelines, for the purposes of reporting, the signs for removals are always negative (-) and for emissions positive (+). Net CO_2 emissions/removals are calculated as follows: Net CO_2 = CO_2 emissions + CO_2 removals.

Documentation box
Parties should provide detailed explanations on the land use, land-use change and forestry sector in chapter 7: Land use, land-use change and forestry (CRF sector 5) of the NIR. Use the documentation box to provide references to relevant sections of the NIR if any additional and/or further details are needed to understand the content of this table.

5.A SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Forest land
(Sheet 1 of 4)

Country
Year
Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ACTIVITY DATA					IMPLIED EMISSION FACTORS								
Land category	Climatic zone	Sub-division[1]	Total area[2]	Area of mineral soils	Area of organic soils	Area burned[3]	Amount of fertilizers used[4]	Increase in above-ground biomass carbon due to increment[5]	Net carbon change in above-ground biomass	Net carbon change in below-ground biomass	Net carbon change in biomass (above and below-ground)	Net carbon change in dead organic matter	Net carbon change in mineral soils	CO_2-C emissions/ removals from organic soils	Biomass burning		Fertilization[4]
															CH_4	N_2O	N_2O
			(kha)				(Mg)	(Mg C/ha)							(Mg/ha)		(kg N/kg input)
			A= (B+C)	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Total 5.A Forest land																	
5.A.1. Forest land remaining forest land	Total																
	a. Tropical																
	b. Temperate																
	c. Boreal[6]																
	d. Other (please specify)																
5.A.2. Land converted to forest land[7]	Total																
5.A.2.1 Cropland converted to forest land	Sub-total																
	a. Tropical																
	b. Temperate																
	c. Boreal[6]																
	d. Other (please specify)																
5.A.2.2 Grassland converted to forest land	Sub-total																
	a. Tropical																
	b. Temperate																
	c. Boreal[6]																
	d. Other (please specify)																
5.A.2.3. Other (please specify)[8]	Sub-total																
	Wetlands converted to forest land[9]																
	Settlements converted to forest land[9]																
	Other land converted to forest land[9]																
	Other[9]																

(1) Land categories may be further divided according to forest type (e.g. plantations, semi-natural or natural forests), tree species, ecological zones or national land classification, but aggregate data should include each land category and climatic zone which occurs in a country.

(2) The total land area should be equal to the sum of the area of mineral soils and organic soils. If a Party is not able to provide information on mineral and organic soils separately, it should provide additional information on how changes in soil carbon stocks and non-CO_2 emissions are estimated.

(3) Parties should provide information on area burned in the additional information box (sheet 3 of 4).

(4) Amount of fertilizers used and N_2O emissions from fertilization can be provided at aggregate level.

(5) Note that the signs for estimates of net increases in carbon stocks are positive (+) and of net decreases in carbon stocks are negative (-). Net changes in carbon stocks are converted to CO_2 by multiplying C by 44/12 and by changing the sign for net CO_2 removals to be negative and for net CO_2 emissions to be positive (+).

(6) Specify if tundra or polar region is included under boreal climatic zone.

(7) A Party may report aggregate estimates for all land-use conversion to forest land when data are not available to report them separately. A Party should specify which types of land-use conversion are included.

(8) May include land-use conversion from wetland, settlement and other land to forest land. For each land-use conversion, specify climatic zone.

(9) Pull down menu: a. Tropical; b. Temperate; c. Boreal; d. Other (please specify).

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

5.A SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Forest land
(Sheet 2 of 4)

Country
Year
Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ESTIMATES																		
			Carbon														Net CO_2 emissions/ removals[14]	Non-CO_2 emissions				
Land category	Climatic zone	Sub-division[1]	Increase in above-ground biomass carbon due to increment[10]	Loss in above-ground biomass carbon due to harvesting[10]	Loss in above-ground biomass carbon due to fuelwood gathering/ harvesting[10]	Loss in above-ground biomass carbon due to natural losses[10]	Net carbon change in above-ground biomass[10]	Increase below-ground biomass carbon[11]	Loss in below-ground biomass carbon[11]	Net carbon change in below-ground biomass[11]	Net carbon change in biomass (above and below-ground)[10]	Net carbon change in dead organic matter[12]	Net carbon change in mineral soils	CO_2-C emissions/ removals in organic soils[13]	Net changes in carbon (biomass, DOM and soil carbon)		Biomass burning		Fertilization[4]	Due to other reasons[15]	
																		CH_4	N_2O	N_2O	CH_4	N_2O
			(Gg C)														(Gg CO_2)	(Gg)				
			P	Q	R	S	T= (P+Q+R+S	U	V	W=(U+V)	X=(T+W)	Y	Z	AA	AB=(X+Y +Z+AA)	AC	AD	AE	AF	AG	AH
Total 5.A Forest land																					
5.A.1. Forest land remaining forest land	Total																				
	a. Tropical																				
	b. Temperate																				
	c. Boreal[6]																				
	d. Other (please specify)																				
5.A.2. Land converted to forest land[7]	Total																				
5.A.2.1 Cropland converted to forest land	Sub-total																				
	a. Tropical																				
	b. Temperate																				
	c. Boreal[6]																				
	d. Other (please specify)																				
5.A.2.2 Grassland converted to forest land	Sub-total																				
	a. Tropical																				
	b. Temperate																				
	c. Boreal[6]																				
	d. Other (please specify)																				
5.A.2.3. Other (please specify)[8]	Sub-total																				
	Wetlands converted to forest land[9]																				
	Settlements converted to forest land[9]																				
	Other land converted to forest land[9]																				
	Other[9]																				

[10] A Party should report increases and losses in biomass carbon stock if it applies the IPCC default method (equation 3.1.1 of good practice guidance for LULUCF), where the total carbon change in biomass is a sum of increase of biomass due to biomass increment and losses of carbon in biomass due to harvesting, fuelwood gathering, forest fires or other disturbances. A Party should provide additional information on how to separate CH_4 emissions from changes in biomass carbon. A Party applying the stock-change method (equation 3.1.2 of good practice guidance for LULUCF) may report only a net carbon change in biomass. A Party should provide additional information about its choice of method in the documentation box.

[11] Altough the good practice guidance for LULUCF does not provide guidance on how to estimate losses in below-ground biomass carbon, Parties are encouraged to provide this information separately.

[12] Tier 1 of the good practice guidance for LULUCF assumes that there is no change in dead organic matter carbon pool. A Party should report zero if applying tier 1 for dead organic matter. A Party using higher tiers should provide additional information on methods used.

[13] Emissions from organic soils occur as CO_2, but these are converted to carbon by dividing CO_2 emissions by 44/12.

[14] Net changes in carbon are converted to CO_2 emissions by multiplying C by 44/12. Note that according to the 1996 IPCC Guidelines, for the purposes of reporting, the signs for net CO_2 removals are always negative (-) and for net CO_2 emissions positive (+).

[15] May include other CH_4 and N_2O emission, e.g. from drainage of forest land. A Party should provide additional information what sources are included and on methods used.

5.A. SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY

Country

Forest land

Year

Additional information for emissions from biomass burning in forest land

Submission

(Sheet 3 of 4)

Land category	Activity data				Estimates								
	Amount of biomass carbon burned			Area burned	CH_4			N_2O			CO_2	NOx	CO
	On-site	Off-site	Total (Carbon)[1]		On-site	Off-site	Total[2]	On-site	Off-site	Total[3]	Total[4]	Total	Total
	(Gg C)			(kha)	(Gg C)			(Gg C)			(Gg C)	(Gg C)	(Gg C)
5.B.1 Forest land remaining forest land													
5.B.2. Lands converted to forest land													
5.B.2.1. Cropland converted to forest land													
5.B.2.2. Grassland converted to forest land													
5.B.2.3. Other conversions to forest land (please specify)													
Wetlands converted to forest land													
Settlements converted to forest land													
Other land converted to forest land													

(1) For forest land remaining forest land, data correspond to carbon loss estimates from biomass burning in managed forest land (from wildfires, controlled fires, etc). For this source there is no on-site versus off-site designation because all biomass is burned on-site. A Party may provide additional information on biomass burning from wildfires and controlled fires.

(2) This column corresponds to CH_4 emissions from biomass burning in managed forest land (from wildfires, controlled fires, etc). For this source there is no on-site versus off-site designation because all biomass is burned on-site.

(3) This column corresponds to N_2O emissions from biomass burning in managed forest land (from wildfires, controlled fires, etc). For this source there is no on-site versus off-site designation because all biomass is burned on-site.

(4) Note that CO_2 emissions from biomass burning for land use conversions are not covered explicitly in the good practice guidance for LULUCF; rather, they are included in the estimate of biomass carbon losses.

5.A SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY

Forest land

Documentation box

(Sheet 4 of 4)

Country

Year

Submission

Documentation box:
Parties should provide detailed explanations on the land use, land-use change and forestry sector in chapter 7: Land use, land-use change and forestry (CRF Sector 5) of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of this table, e.g. (i) to explain the use of notation keys; (ii) to indicate, when CRF tables are not sufficient, where additional data and information on activity data and estimates can be found; (iii) to indicate where in the NIR additional information on methodologies, parameters or activity data can be found.

5.B SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Cropland
(Sheet 1 of 4)

Country
Year
Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ACTIVITY DATA							IMPLIED EMISSION FACTORS								
Land category	Climatic zone	Sub-division[1]	Total area[2]	Area of perennial woody crops	Area of mineral soils	Area of organic soils	Amount of biomass burned	Total amount of lime used[3]		Net carbon change in perennial woody biomass[4]	Net carbon change in dead organic matter[4]	Net carbon change in mineral soils[4]	CO_2-C emissions/ removals from organic soils[5]	CO_2-C emissions from liming[3]		Biomass burning		Soil mineralization
								Limestone	Dolomite					Limestone	Dolomite	CH_4	N_2O	N_2O
			(kha)				(Gg C)	(Mg)		(Mg C/ha)						(Mg/ha)		
			A = (C+D)	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Total 5.B Cropland																		
5.B.1. Cropland remaining cropland	Total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.B.2. Land converted to cropland[7]	Total																	
5.B.2.1 Forest land converted to cropland	Sub-total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.B.2.2 Grassland converted to cropland	Sub-total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.B.2.3. Other (please specify)	Sub-total																	
	Wetlands converted to cropland[8]																	
	Settlements converted to cropland[8]																	
	Other land converted to cropland[8]																	
	Other[8]																	

(1) Land categories may be further divided according to vegetation type, ecological zones or national land classification, but aggregate data should include each land category and climatic zone which occurs in a country.

(2) The total land area should be equal to the sum of the area of mineral and organic soils. If a Party is not able to provide information on mineral and organic soils separately, it should provide additional information on how changes in soil carbon stocks and non-CO_2 emissions are estimated.

(3) Amount of lime used and CO_2-C emissions from liming can be provided at aggregate level.

(4) Note that the signs for estimates of net increases in carbon stocks are positive (+) and of net decreases in carbon stocks are negative (-). Net changes in carbon stocks are converted to CO_2 by multiplying C by 44/12 and by changing the sign for net CO_2 removals to be negative (-) and for net CO_2 emissions to be positive (+).

(5) Emissions from organic soils and liming occur as CO_2 but these are converted to carbon by dividing CO_2 emissions by 44/12.

(6) Specify if tundra or polar region is included under boreal climatic zone.

(7) A Party may report aggregate estimates for all land conversions to cropland, when data are not available to report them separately. A Party should specify which types of land conversion are included.

(8) Pull down menu: a. Tropical; b. Temperate; c. Boreal; d. Other (please specify).

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

5.B SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Cropland
(Sheet 2 of 4)

Country
Year
Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ESTIMATES												
			Carbon									Net CO_2 emissions/ removals[12]	Non-CO_2 emissions[13]		
Land category	Climatic zone	Sub-division[1]	Increase in biomass carbon (growth in perennial woody biomass)	Loss in biomass carbon (decrease of perennial woody biomass)	Net carbon change in perennial woody biomass[9]	Net carbon change in dead organic matter[10]	Net carbon change in mineral soils	CO_2-C carbon emissions /removal from organic soils[11]	CO_2 - C emissions from liming[11]		Net change of carbon		Biomass burning		Soil mineralization
									Liming	Dolomite			CH_4	N_2O	N_2O
			(Gg C)									(Gg CO_2)	(Gg)		
			Q	R	S = (Q+R)	T	U	V	W	X	Y = (S+T+U+V +W+X)	Z	AA	AB	AC
Total 5.B Cropland (total)															
5.B.1. Cropland remaining cropland	Total														
	a. Tropical														
	b. Temperate														
	c. Boreal[6]														
	d. Other (please specify)														
5.B.2. Land converted to cropland[7]	Total														
5.B.2.1 Forest land converted to cropland	Sub-total														
	a. Tropical														
	b. Temperate														
	c. Boreal[6]														
	d. Other (please specify)														
5.B.2.2 Grassland converted to cropland	Sub-total														
	a. Tropical														
	b. Temperate														
	c. Boreal[6]														
	d. Other (please specify)														
5.B.2.3. Other (please specify)	Sub-total														
	Wetlands converted to cropland[8]														
	Settlements converted to cropland[8]														
	Other land converted to cropland[8]														
	Other[8]														

[9] For cropland, the good practice guidance for LULUCF provides a tier 1 method for only above-ground biomass. A Party applying the stock change method (e.g. equation 3.1.2 of good practice guidance for LULUCF) may report only net carbon change in perennial woody biomass. A Party using higher tiers should use the documentation box to clarify whether below-ground biomass has been considered.

[10] Note that the good practice guidance for LULUCF does not provide methodologies for estimation of changes in dead organic matter for cropland. A Party should provide additional information on methods if it provides estimates for dead organic matter for cropland.

[11] Emissions from organic soils and liming occur as CO_2 but these are converted to carbon by dividing CO_2 emissions by 44/12.

[12] Net changes in carbon are converted to CO_2 emissions by multiplying C by 44/12. Note that according to the 1996 IPCC Guidelines, for the purposes of reporting, the signs for CO_2 removals are always negative (-) and for CO_2 emissions positive (+).

[13] Note that CH_4 and N_2O emissions from biomass burning of agricultural residues are reported in the agriculture sector under category 4.F Field burning of agricultural residues. N_2O emissions resulting from the use of fertilizer in agriculture are covered in the agriculture sector under category 4.D Direct N_2O emissions from soils.

5.B SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY

Country

Cropland

Year

Additional information for emission from biomass burning in land conversion to cropland

Submission

(Sheet 3 of 4)

Land category	Activity Data			Estimates							
	Amount of biomass carbon burned			CH_4			N_2O			NOx	CO
	On-site	Off-site	Total	On-site	Off-site	Total	On-site	Off-site	Total	Total	Total
	(Gg C)			($Gg\ CH_4$)			($Gg\ N_2O$)			(Gg)	(Gg)
5.B.1 Cropland remaining cropland[1]											
5.B.2. Lands converted to cropland[2]											
5.B.2.1. Forest land converted to cropland											
5.B.2.2. Grassland Converted to cropland											
5.B.2.3. Other conversions to cropland (please specify)											
Wetlands converted to cropland											
Settlements converted to cropland											
Other land converted to cropland											

(1) For cropland remaining cropland, data are not applicable because emissions from burning agricultural residues are covered in the Agriculture sector under category 4. F Field burning of agricultural residues.

(2) Provide estimates resulting from land conversion from forest land, grassland and other conversion to cropland.

5.B SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Cropland
(Sheet 4 of 4)

Country
Year
Submission

Documentation box:
Parties should provide detailed explanations on the land use, land-use change and forestry sector in chapter 7: Land use, land-use change and forestry (CRF Sector 5) of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of this table, e.g. (i) to explain the use of notation keys; (ii) to indicate, when CRF tables are not sufficient, where additional data and information on activity data and estimates can be found; (iii) to indicate where in the NIR additional information on methodologies, parameters or activity data can be found.

5.C SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Grassland
(Sheet 1 of 4)

Country
Year
Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ACTIVITY DATA						IMPLIED EMISSION FACTORS									
Land category	Climatic zone	Sub-division[1]	Total area[2]	Area of mineral soils	Area of organic soils	Amount of biomass burned	Total amout of lime used[3]		Net carbon change in biomass[4]	Net carbon change in dead organic matter[4]	Net carbon change in mineral soils[4]	CO_2-C emissions/ removals from organic soils[5]	CO_2-C emissions from liming [3], [5]		Biomass burning		Other CH_4 emissions	Soil mineralization
							Limestone	Dolomite					Limestone	Dolomite	CH_4	N_2O		N_2O
			(kha)			(Gg C)	(Mg)	(Mg)	(Mg C/ha)						(Mg/ha)			
			A = (B+C)	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Total 5.C Grassland																		
5.C.1. Grassland remaining grassland	Total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.C.2. Land converted to grassland[7]	Total																	
5.C.2.1 Forest land converted to grassland	Sub-total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.C.2.2 Cropland converted to grassland	Sub-total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.C.2.3. Other (please specify)[2]	Sub-total																	
	Wetland converted to grassland [8]																	
	Settlement converted to grassland [8]																	
	Other lands converted to grassland [8]																	
	Other [8]																	

(1) Land categories may be further divided according to vegetation type, ecological zones or national land classification, but aggregate data should include each category and climatic zone which occurs in a country.

(2) The total land area should be equal to the sum of the area of mineral soils and organic soils.
If a Party is not able to provide information on mineral and organic soils separately, it should provide additional information on how changes in soil carbon stocks and non-CO_2 emissions are estimated.

(3) Amount of lime used and CO_2-C emissions from limimg can be provided at aggregate level.

(4) Note that the signs for estimates of net increases in carbon stocks are positive (+) and of net decreases in carbon stocks are negative (-). Net changes in carbon stocks are converted to CO_2 by multiplying C by 44/12 and by changing the sign for net CO_2 removals to be negative (-) and for net CO_2 emissions to be positive (+).

(5) Emissions from organic soils and liming occur as CO_2 but these are converted to carbon by dividing CO_2 emissions by 44/12.

(6) Specify if tundra or polar region is included under boreal climatic zone.

(7) A Party may report aggregate estimates for all land conversion to grassland when data are not available to report them separately. A Party should specify which types of land use conversion are included.

(8) Pull down menu: a. Tropical; b. Temperate; c. Boreal; d. Other (please specify).

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

5.C SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Grassland
(Sheet 2 of 4)

Country
Year
Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ESTIMATES															
			Carbon											Non-CO_2 emissions			
Land category	Climatic zone	Sub-division[1]	Increase in carbon due to biomass increment	Loss in biomass carbon due to felling	Loss in biomass carbon due to fuelwood gathering/ harvesting	Loss in biomass carbon due to natural disturbances and vegetation fires	Net carbon change in biomass[9]	Net carbon change in dead organic matter[10]	Net carbon change in mineral soils	CO_2-C emissions/ removals from organic soils[5]	CO_2-C emissions from liming[3, 5]		Net change of carbon	Net CO_2 emissions/ removals	Biomass burning		Due to other reasons[11]	
											Limestone	Dolomite			CH_4	N_2O	CH_4	N_2O[12]
			(Gg C)											(Gg CO_2)	(Gg C)			
			Q	R	S	T	U = (Q+R+S+T)	V	W	X	Y	Z	AA = (U+V+W+X+Y+Z)	AB	AC	AD	AE	AF
Total 5.C Grassland																		
5.C.1. Grassland remaining grassland	Total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.C.2. Land converted to grassland[7]	Total																	
5.C.2.1 Forest land converted to grassland	Sub-total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.C.2.2 Cropland converted to grassland	Sub-total																	
	a. Tropical																	
	b. Temperate																	
	c. Boreal[6]																	
	d. Other (please specify)																	
5.C.2.3. Other (please specify)	Sub-total																	
	Wetlands converted to grassland[8]																	
	Settlements converted to grassland[8]																	
	Other land converted to grassland[8]																	
	Other[8]																	

[9] A Party should report increases and losses in biomass carbon stock if it applies the IPCC default method (e.g. equation 3.1.1 of good practice guidance for LULUCF), where the total carbon change in biomass is a sum of increase of biomass due to biomass increment and losses of carbon in biomass due to harvesting, fuelwood gathering and due to national disturbances and vegetation fires on managed grasslands. A Party applying the stock-change method (equation 3.4.5 of good practice guidance for LULUCF) may report only net carbon change in biomass. A Party should provide additional information about its choice of method in the documentation box.

[10] Note that good practice guidance for LULUCF provides methods for living biomass and soils only. A Party may wish to provide estimates for dead organic matter and additional information on methods used.

[11] May include emissions due to soil nitrification, denitrification, nitrogen fertilization, nitrogen deposition, human-induced change of the CH_4 sink in forest soil, and non-CO_2 emissions from drained soils. A Party should specify emissions. A Party should provide additional information on what and how non-CO_2 emissions are estimated in the documentation box.

[12] Includes N_2O emissions due to soil mineralization.

5.C SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY

Country

Grassland

Year

Additional information for emissions from biomass burning in land conversion to grassland

Submission

(Sheet 3 of 4)

Land category	Activity data			Estimates							
	Amount of biomass carbon burned			CH_4			N_2O			NOx	CO
	On-site	Off-site	Total	On-site	Off-site	Total	On-site	Off-site	Total	Total	Total
	(Gg C)			(Gg CH_4)			(Gg N_2O)			(Gg)	(Gg)
5.B.1 Grassland remaining grassland[1]											
5.B.2. Lands converted to grassland											
5.B.2.1. Forest land converted to grassland											
5.B.2.2. Cropland converted to grassland											
5.B.2.3. Other conversions to grassland (please specify)											
Wetlands converted to grassland											
Settlements converted to grassland											
Other land converted to grassland											

(1) For grassland remaining grassland, data are not applicable because trace emissions from savannah burning are covered in the Agriculture sector under category 4.E Prescribed Burning of Savannas.

5.C SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY

Grassland

Documentation box

(Sheet 4 of 4)

Country

Year

Submission

Documentation box:
Parties should provide detailed explanations on the land use, land-use change and forestry sector in chapter 7: Land use, land-use change and forestry (CRF Sector 5) of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of this table, e.g. (i) to explain the use of notation keys; (ii) to indicate, when CRF tables are not sufficient, where additional data and information on activity data and estimates can be found; (iii) to indicate where in the NIR additional information on methodologies, parameters or activity data can be found.

5. D SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY
Forest land and grassland converted to wetlands, settlements and other land
(Sheet 1 of 4)

Country
Year
Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ACTIVITY DATA				IMPLIED EMISSION FACTORS								
Land category	Climatic zone	Sub-division[1]	Total area[2]	Area of mineral soils	Area of organic soils	Amount of biomass burned	Net carbon change in above-ground biomass[3]	Net carbon change in below-ground biomass	Net carbon change in biomass (above and below-ground)	Net carbon change in dead organic matter	Net carbon change in mineral soils	CO_2-C emissions/ removals from organic soils	Biomass burning		Soil mineralization
													CH_4	N_2O	N_2O
			(kha)			(Mg C)	(Mg)		(Mg C/ha)				(Mg/ha)		
			A = (B+C)	B	C	D	E	F	G = E+F	H	I	J	K	L	M
Total 5.D Forest land and grassland converted to wetlands, settlements and other land															
5.D.1 Forest land converted to wetlands, settlements and other land	Total														
	a. Tropical														
	b. Temperate														
	c. Boreal[4]														
	d. Other (please specify)														
5.D.1.1. Forest land converted to wetlands	Sub-total														
	a. Tropical														
	b. Temperate														
	c. Boreal[4]														
	d. Other (please specify)														
5.D.1.2. Forest land converted to settlements	Sub-total														
	a. Tropical														
	b. Temperate														
	c. Boreal[4]														
	d. Other (please specify)														
5.D.1.3 Forest land converted to other land	Sub-total														
	a. Tropical														
	b. Temperate														
	c. Boreal[4]														
	d. Other (please specify)														
5.D.2 Grassland converted to wetlands, settlements and other land	Total														
	a. Tropical														
	b. Temperate														
	c. Boreal[4]														
	d. Other (please specify)														

(1) Land categories may be further divided according to forest or vegetation type, ecological zones or national land classification, but aggregate data should include each land conversion category and climatic zone which occurs in a country.

(2) The total land area should be equal to the sum of the area of mineral and organic soils. If a Party is not able to provide information on mineral and organic soils separately, it should provide additional information on how changes in soil carbon stocks and non-CO_2 emissions are estimated.

(3) Note that the signs for estimates of net increases in carbon stocks are positive (+) and of net decreases in carbon stocks are negative (-). Net changes in carbon stocks are converted to CO_2 by multiplying C by 44/12 and by changing the sign for net CO_2 removals to be negative (-) and for net CO_2 emissions to be positive (+).

(4) Specify if tundra or polar region is included under boreal climatic zone.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

5. D SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY Country
Forest land and grassland converted to wetlands, settlements and other land Year
(Sheet 2 of 4) Submission

LAND USE AND LAND-USE CHANGE FOR REPORTING YEAR			ESTIMATES											
			Carbon							Net CO_2 emissions/ removals[6]	Non-CO_2 emissions[7]			
Land category	Climatic zone	Sub-division[1]	Net carbon change in above-ground biomass	Net carbon change in below-ground biomass	Net carbon change in biomass (above and below ground)	Net carbon change in dead organic matter[5]	Net carbon change in mineral soils[5]	Net CO_2-C carbon change in organic soils	Net carbon change		Biomass burning		Soil mineralization
											CH_4	N_2O	N_2O
			(Gg C)							(Gg CO_2)	(Gg)			
			N	O	P=(N+O)	Q	R	S	T = (P+Q+R+S)	U	V	W	X	
Total 5.D Forest land and grassland converted to wetlands, settlements and other land														
5.D.1 Forest land converted to wetlands, settlements and other land	Total													
	a. Tropical													
	b. Temperate													
	c. Boreal[4]													
	d. Other (please specify)													
5.D.1.1. Forest land converted to wetlands	Sub-total													
	a. Tropical													
	b. Temperate													
	c. Boreal[4]													
	d. Other (please specify)													
5.D.1.2. Forest land converted to settlements	Sub-total													
	a. Tropical													
	b. Temperate													
	c. Boreal[4]													
	d. Other (please specify)													
5.D.1.3 Forest land converted to other land	Sub-total													
	a. Tropical													
	b. Temperate													
	c. Boreal[4]													
	d. Other (please specify)													
5.D.2 Grassland converted to wetlands, settlements and other land	Total													
	a. Tropical													
	b. Temperate													
	c. Boreal[4]													
	d. Other (please specify)													

(5) A Party may choose to report carbon changes in dead organic matter and in mineral soils at aggregate level.

(6) Net changes in carbon are converted to CO_2 emissions by multiplying C by 44/12. Note that the signs for removals are always negative (-) and for emissions positive (+).

(7) Note that CH_4 and N_2O emissions from biomass burning of agricultural residues are reported in the Agriculture sector under category 4.F Field Burning of Agricultural Residues. N_2O emissions resulting from the use of fertilizer in agriculture are covered in the Agriculture sector under category 4.D Direct N_2O Emissions from Soils.

5. D SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY

Country

Forest land and grassland converted to wetlands, settlements and other land

Year

Additional information for emissions from biomass burning

Submission

(Sheet 3 of 4)

Land category	Activity Data			Estimates							
	Amount of biomass carbon burned			CH_4			N_2O			NOx	CO
	On-site	Off-site	Total	On-site	Off-site	Total	On-site	Off-site	Total	Total	Total
	(Gg C)			($Gg\ CH_4$)			($Gg\ N_2O$)			(Gg NOx)	(Gg CO)
5.D Forest land and grassland converted to wetlands, settlements and other land											
5.D.1 Forest land and grassland converted to wetlands, settlements and other land											
5.D.1.1 Forest land converted to wetlands											
5.D.1.2 Forest land converted to settlements											
5.D.1.3 Forest land converted to other land											
5.D.2 Grassland converted to wetlands, settlements and other land											

5. D SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY

Country

Forest land and grassland converted to wetlands, settlements and other land

Year

(Sheet 4 of 4)

Submission

Documentation box:
Parties should provide detailed explanations on the land use, land-use change and forestry sector in chapter 7: Land use, land-use change and forestry (CRF Sector 5) of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of this table, e.g. (i) to explain the use of notation keys; (ii) to indicate, when CRF tables are not sufficient, where additional data and information on activity data and estimates can be found; (iii) to indicate where in the NIR additional information on methodologies, parameters or activity data can be found.

Annex II

Identification of technical changes to other tables of the common reporting format resulting from draft tables of the common reporting format for LULUCF categories

Draft tables of the common reporting format for the LULUCF categories would replace the following tables in the common reporting format as contained in document FCCC/CP/2002/8:

- Table 5 Sectoral report for land-use change and forestry
- Table 5.A Sectoral background data for land-use change and forestry. Changes in Forest and Other Woody Biomass Stocks.
- Table 5.B Sectoral background data for land-use change and forestry. Forest and Grassland Conversion.
- Table 5.C Sectoral background data for land-use change and forestry. Abandonment of Managed Lands.
- Table 5.D Sectoral background data for land-use change and forestry. CO_2 Emissions and Removals from Soils.

Adoption of the draft tables of the common reporting format for the LULUCF categories presented in annex I would imply, subject to the consideration and further development by the SBSTA and the adoption by the COP, the following technical changes in other tables of the common reporting format included in document FCCC/CP/2002/8:

- The title of the inventory category Land-Use Change and Forestry would be changed to Land Use, Land-Use Change and Forestry and consequently new inventory categories would be introduced (e.g. in Summary 1.A, Summary 1.B, Summary 2, Summary 3, Table 8 (a) and Table 10).
- A reference to reporting CO_2 emissions and removals from agricultural soils would be added under the LULUCF category (e.g. in Table 4, Summary 1.A, Summary 1.B, Summary 2, Summary 3, Table 8 (a) and Table 10).

Annex III

Additional guidance on sectoral reporting on the LULUCF categories to be included in the corresponding section of the NIR

Land use, land-use change and forestry

Annex I Parties should provide specific information for each category on:

- Tiers used for each category, carbon pool and non-CO_2 emission;
- Approaches and methods used to estimate changes in carbon stocks and emissions, including field measurements and models used;
- Sources of information, carbon pool and non-CO_2 emission including references;
- Equations, key parameters and emission and removal factors used;

This information should be provided for the following inventory categories:

- Forest land;
- Cropland;
- Grassland;
- Forest land and grassland converted to wetland, settlement and other lands;
- Other

The information provided in the NIR should be cross-referenced to information in the CRF and vice versa. Additional information, including that requested in footnotes to the CRF, should be included in the NIR, depending on the Annex I Party's approach for estimating GHG emissions and removals.

Annex IV

Draft tables of the common reporting format for land use, land-use change and forestry activities for reporting under the Kyoto Protocol

TABLE A. SUMMARY TABLE
(Sheet 1 of 1)

Country
Year
Submission

ELIGIBLE ACTIVITIES	CO_2 emissions/ removals[1]	CH_4	N_2O
	(Gg CO_2)	(Gg)	(Gg)
Total Land Use, Land-Use Change and Forestry activities [2]			
Article 3.3 [2]			
Sub-total Article 3.3 activities			
Afforestation and reforestation (sub-total)			
A.1 Afforestation and reforestation. Lands not harvested during the first commitment period			
A.2 Afforestation and reforestation. Lands harvested during the first commitment period			
Afforestation and reforestation. Lands subject to elected activities under Article 3.4			
A.3 Deforestation			
Deforestation subject to elected 3.4 activities			
Article 3.4 [2]			
Sub-total Article 3.4 activities			
A.4 Forest management (if elected)			
A.5 Cropland management (if elected)			
A.6 Grazingland management (if elected)			
A.7 Revegetation (if elected)			

(1) Note that the signs should be (-) for net removals and (+) for net emissions.

(2) Estimates should exclude emissions and removals from lands subject to activities under Article 6 (Joint Implementation).

TABLE A.1. AFFORESTATION AND REFORESTATION. LANDS NOT HARVESTED DURING THE FIRST COMMITMENT PERIOD

Country
Year
Submission

LAND AREA				IMPLIED EMISSION FACTORS			ESTIMATES											
							INCREASES (+) AND DECREASES (-) IN C POOLS[1]										EMISSIONS/REMOVALS[2]		
													Soil						
Serial number	ID of geographical location[3]	Is this area of land eligible to an Article 3.4 activity?[4]	Area[5] afforestated/ reforestated	Net change in above-ground biomass	Net carbon stock change	Net CO_2 emissions/ removals	Increase of above-ground biomass[6]	Decrease of above-ground biomass[6]	Net change in above-ground biomass[6]	Net change in below-ground biomass	Net change in litter	Net change in dead wood	Net change in mineral soils	CO_2 - C emissions from organic soils	CO_2 -C emissions from liming[7]	Total carbon stock change	Net CO_2 emissions/ removals	CH_4 emissions[7]	N_2O emissions[7]
		y/n	(ha)	(Mg C/ha)	(Mg C/ha)	(Mg CO_2/ha)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(GgC)	(Gg C)	(Gg CO_2)	(Gg)	(Gg)
			A	B	C	D	E	F	G=(E+F)	H	I	J	K	L	M	N = (G+H+I+J+K+L+M)	O	P	Q
Total																			
1																			
2																			
3																			
[…]																			
N																			

(1) According to paragraph 21 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), if a Party chooses not to account for a given pool in the commitment period, transparent and verifiable information to demonstrate that the pool is not a source should be provided. Note that the increase in carbon stock is positive (+) and the decrease is negative (-).

(2) Note that the signs for reporting emissions and removals should be negative (-) for net removals and positive (+) for net emissions.

(3) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to afforestation/reforestation lands not harvested during the first commitment period.

(4) In accordance with decision 22/CP.7, paragraph 6 (b), a distinction should be made between the units of land subject to activities under Article 3.3, which would otherwise be included in land subject to activities under Article 3.4.

(5) Parties should provide the sum of area of all the units of land subject to the activity within the geographical location.

(6) Parties using a stock-change method (equation 3.1.2 of draft good practice guidance for LULUCF) do not need to provide separate estimates for both decreases and increases in carbon stocks from above-ground biomass. A net increase or a net decrease should be added in the appropriate column.

(7) Parties are encouraged to provide estimates for liming or use of fertilizers for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

Table A.1.1 Afforestation and reforestation. Lands not harvested during the first commitment period
Additional information on biomass burning

Country
Year
Submission

Land area		Activity data		Estimates		
Serial number	ID of geographical location[1]	Biomass carbon released from burning	Area burned	CO_2	CH_4 emissions	N_2O emissions
		(GgC)	(ha)	(Gg)	(Gg)	(Gg)
Total[2]						
1						
2						
3						
[…]						
N						

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to afforestation/reforestation lands not harvested during the first commitment period.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Table A.1.2 Afforestation and reforestation. Lands not harvested during the first commitment period
Additional information on fertilizers and liming

Country
Year
Submission

Land area		Activity data			Estimates		
			Amount of lime used			CO_2 - C emissions from liming	
Serial number	ID of geographical location[1]	Amount of fertilizers used	Lime-stone	Dolomite	N_2O due to the use of fertilizers	Limestone	Dolomite
		(Mg)	(Mg)	(Mg)	(Gg N_2O)	(Gg C)	(Gg C)
Total[2]							
1							
2							
3							
[…]							
N							

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to A/R lands not harvested during the first commitment period.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Documentation box

Parties should provide detailed explanations on the land use, land-use change and forestry activities under Article 3.3 and elected activities under Article 3.4 in Chapter 7: Land use, land-use change and forestry of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of these tables.

TABLE A.2. AFFORESTATION AND REFORESTATION. LANDS HARVESTED DURING THE FIRST COMMITMENT PERIOD

Country
Year
Submission

LAND AREA				IMPLIED EMISSION FACTORS				ESTIMATES													
								INCREASES (+) AND DECREASES (-) IN C POOLS[1]									EMISSIONS/REMOVALS[2]				
Serial number	ID of geographical location[3]	Is this area of land eligible to an Article 3.4 activity?[4]	Area[5] afforestated/ reforestated and harvested during the commitment period	Net changes in above-ground biomass	Net carbon stock change	Net CO_2 emissions / removals	Emissions from Harvesting	Increase of above-ground biomass[6]	Decrease of above-ground biomass[6]	Net change in above-ground biomass[6]	Net change in below-ground biomass	Net change in litter	Net change in dead wood	Net change in soil		C-CO_2 emissions from liming[7]	Total carbon stock change	Net CO_2 emissions/ removals	CH_4 emissions[7]	N_2O emissions[7]	Emissions from harvesting[8]
														Mineral soils	CO_2 - C emissions from organic soils						
		(y/n)	(ha)	(Mg C/ha)	(MgC/ha)	(Mg CO_2/ha)	(Mg CO_2/ha)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg CO_2)	(Gg)	(Gg)	(Gg CO_2e)
			A	B	C	D	E	F	G	H=(F+G)	I	J	K	L	M	N	O=(H+I+J+K+L+M+N)	P	Q	R	S
Total																					
1																					
2																					
3																					
[…]																					
N																					

(1) According to paragraph 21 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), if a Party chooses not to account for a given pool in the commitment period, transparent and verifiable information to demonstrate that the pool is not a source should be provided. Note that the increase in carbon stock is positive (+) and the decrease is negative (-).

(2) Note that the signs for reporting emissions and removals should be negative (-) for net removals and positive (+) for net emissions.

(3) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to afforestation/reforestation lands harvested during the first commitment period.

(4) In accordance with decision 22/CP.7, paragraph 6 (b), a distinction should be made between the units of land subject to activities under Article 3.3, which would otherwise be included in land subject to activities under Article 3.4.

(5) Parties should provide the sum of area of all the units of land subject to the activity within the geographical location.

(6) Parties using a stock-change method (equation 3.1.2 of draft good practice guidance for LULUCF) do not need to provide separate estimates for both decreases and increases in carbon stocks from above-ground biomass. A net increase or a net decrease should be added in the appropriate column.

(7) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

(8) Emissions due to harvesting including all pools and non-CO_2 emissions.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

Table A.2.1 Afforestation and reforestation. Lands harvested during the first commitment period
Additional information on biomass burning

Country
Year
Submission

Land area		Activity data		Estimates		
Serial number	ID of geographical location[1]	Biomass carbon released from burning	Area burned	CO_2	CH_4 emissions	N_2O emissions
		(GgC)	(ha)	(Gg)	(Gg)	(Gg)
Total[2]						
1						
2						
3						
[…]						
N						

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to afforestation/reforestation lands harvested during the first commitment period.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Table A.2.2 Afforestation and reforestation. Lands harvested during the first commitment period
Additional information on fertilizers and liming

Country
Year
Submission

Land area		Activity data			Estimates		
Serial number	ID of geographical location[1]	Amount of fertilizers used	Amount of lime used		N_2O due to the use of fertilizers	CO_2 - C emissions from liming	
			Limestone	Dolomite		Limestone	Dolomite
		(Mg)	(Mg)	(Mg)	(Gg N_2O)	(Gg C)	(Gg C)
Total[2]							
1							
2							
3							
[…]							
N							

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to afforestation/reforestation lands harvested during the first commitment period.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2, CH_4 and N_2O emissions.

Documentation box

Parties should provide detailed explanations on the land use, land-use change and forestry activities under Article 3.3 and elected activities under Article 3.4 in Chapter 7: Land use, land-use change and forestry of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of these tables.

TABLE A.3. DEFORESTATION

Country
Year
Submission

LAND AREA				IMPLIED EMISSION FACTORS			ESTIMATES											
							INCREASES (+) AND DECREASES (-) IN C POOLS[1]										EMISSIONS/REMOVALS[2]		
Serial number	ID of geographical location[3]	Is this area of land eligible to an Article 3.4 activity?[4]	Area deforested[5]	Net change in above-ground biomass	Net carbon stock change	Net CO_2 emissions / removals	Increase of above-ground biomass[6]	Decrease of above-ground biomass[6]	Net change in above-ground biomass[6]	Net change in below-ground biomass	Net change in litter	Net change in dead wood	Soil		CO_2-C emissions from liming[7]	Total carbon stock change	Net CO_2 emissions / removals	CH_4 emissions[7]	N_2O emissions[7]
													Net change in mineral soils	CO_2 - C emissions from organic soils					
		y/n	(ha)	(Mg C/ha)	(Mg C/ha)	(Mg CO_2/ha)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg)	(Gg)
			A	B	C	D	E	F	G=(E+F)	H	I	J	K	L	M	N= (G+H+I+J+K+L+M)	O	P	Q
Total																			
1																			
2																			
3																			
[…]																			
N																			

(1) According to paragraph 21 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), if a Party chooses not to account for a given pool in the commitment period, transparent and verifiable information to demonstrate that the pool is not a source should be provided. Note that the increase in carbon stock is positive (+) and the decrease is negative (-).

(2) Note that the signs for reporting emissions and removals should be negative (-) for net removals and positive (+) for net emissions.

(3) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to deforestation lands not harvested during the first commitment period.

(4) In accordance with decision 22/CP.7, paragraph 6 (b), a distinction should be made between the units of land subject to activities under Article 3.3, which would otherwise be included in land subject to activities under Article 3.4.

(5) Parties should provide the sum of area of all the units of land subject to the activity within the geographical location.

(6) Parties using a stock-change method (equation 3.1.2 of draft good practice guidance for LULUCF) do not need to provide separate estimates for both decreases and increases in carbon stocks from above-ground biomass. A net increase or a net decrease should be added in the appropriate column.

(7) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

Table A.3.1 Deforestation
Additional information on biomass burning

Country
Year
Submission

Land area		Activity data		Estimates		
Serial number	ID of geographical location[1]	Biomass carbon released from burning	Area burned	CO_2	CH_4 emissions	N_2O emissions
		(Gg C)	(ha)	(Gg)	(Gg)	(Gg)
Total[2]						
1						
2						
3						
[…]						
N						

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to deforestation.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Table A.3.2 Deforestation
Additional information on fertilizers and liming

Country
Year
Submission

Land area		Activity data			Estimates		
Serial number	ID of geographical location[1]	Amount of fertilizers used	Amount of lime used		N_2O due to the use of fertilizers	CO_2 - C emissions from liming	
			Limestone	Dolomite		Limestone	Dolomite
		(Mg)	(Mg)	(Mg)	(Gg N_2O)	(Gg C)	(Gg C)
Total[2]							
1							
2							
3							
[…]							
N							

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to deforestation.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Documentation box

Parties should provide detailed explanations on the land use, land-use change and forestry activities under Article 3.3 and elected activities under Article 3.4 in Chapter 7: Land use, land-use change and forestry of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of these tables.

TABLE A.4. FOREST MANAGEMENT[1, 2]

Country
Year
Submission

LAND AREA			IMPLIED EMISSION FACTORS			ESTIMATES												
						INCREASES (+) AND DECREASES (-) IN C POOLS[3]										EMISSIONS/REMOVALS[4]		
Serial number	ID of geographical location[5]	Area[6] under forest management	Net change in above-ground biomass	Net carbon stock change	Net CO_2 emissions / removals	Increase of above-ground biomass[7]	Decrease of above-ground biomass[7]	Net change in above-ground biomass[7]	Net change in below-ground biomass	Net change in litter	Net change in dead wood	Soil		CO_2 -C emissions from liming[7]	Total carbon stock change	Net CO_2 emissions / removals	CH_4 emissions[8]	N_2O emissions[8]
												Net change in mineral soils	CO_2 - C emissions from organic soils					
		(ha)	(Mg C/ha)	(Mg C/ha)	(Mg CO_2/ha)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg CO_2)	(Gg)	(Gg)
		A	B	C	D	E	F	G=E+F	H	I	J	K	L	M	N=(G+H+I+J+K+L +M)	O	P	Q
Total																		
1																		
2																		
3																		
[…]																		
N																		

(1) Areas of land under forest management which are also eligible to afforestation, reforestation and deforestation should be reported under tables A.1, A.2. or A.3.

(2) In accordance with paragraph 8 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), a Party should provide information that demonstrates that the activity has taken place since 1 January 1990 and are human induced.

(3) According to paragraph 21 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), if a Party chooses not to account for a given pool in the commitment period, transparent and verifiable information to demonstrate that the pool is not a source should be provided. Note that the increase in carbon stock is positive (+) and the decrease is negative (-).

(4) Note that the signs for reporting emissions and removals should be negative (-) for net removals and positive (+) for net emissions.

(5) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to forest management.

(6) Parties should provide the sum of area of all the units of land subject to the activity within the geographical location.

(7) Parties using a stock-change method (equation 3.1.2 of draft good practice guidance for LULUCF) do not need to provide separate estimates for both decreases and increases in carbon stocks from above-ground biomass. A net increase or a net decrease should be added in the appropriate column.

(8) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

Table A.4.1 Forest management
Additional information on biomass burning

Country
Year
Submission

Land area		Activity data		Estimates		
Serial number	ID of geographical location[1]	Biomass carbon released from burning	Area burned	CO_2	CH_4 emissions	N_2O emissions
		(Gg C)	(ha)	(Gg)	(Gg)	(Gg)
Total[2]						
1						
2						
3						
[…]						
N						

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to to forest management.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Table A.4.2 Forest management
Additional information on fertilizers and liming

Country
Year
Submission

Land area		Activity data			Estimates		
Serial number	ID of geographical location[1]	Amount of fertilizers used	Amount of lime used		N_2O due to the use of fertilizers	CO_2 - C emissions from liming	
			Limestone	Dolomite		Limestone	Dolomite
		(Mg)	(Mg)	(Mg)	(Gg N_2O)	(Gg C)	(Gg C)
Total[2]							
1							
2							
3							
[…]							
N							

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to forest management.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Documentation box
Parties should provide detailed explanations on the land use, land-use change and forestry activities under Article 3.3 and elected activities under Article 3.4 in Chapter 7: Land use, land-use change and forestry of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of these tables.

TABLE A.5. CROPLAND MANAGEMENT[1], [2], [3]

Country
Year
Submission

LAND AREA			IMPLIED EMISSION FACTORS			ESTIMATES												
						INCREASES (+) AND DECREASES (-) IN C POOLS[4]										EMISSIONS/REMOVALS[5]		
Serial number	ID of geographical location[6]	Area[7] under cropland management	Net change in above-ground biomass	Net carbon stock change	Net CO_2 emissions / removals	Increase of above-ground biomass[7]	Decrease of above-ground biomass[7]	Net change in biomass (perennial woody biomass)	Net change in below-ground biomass	Net change in litter	Net change in dead wood	Soil		CO_2-C emissions from liming[8]	Total carbon stock change	Net CO_2 emissions / removals	CH_4 emissions[8]	N_2O emissions[8]
												Net change in mineral soils	CO_2 - C emissions from organic soils					
		(ha)	(Mg C/ha)	(Mg C/ha)	(Mg CO_2/ha)	Gg C	Gg C	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg CO_2)	(Gg)	(Gg)
		A	B	C	D	E	F	G=(E+F)	H	I	J	K	L	M	N	O	P	Q
Totals																		
1																		
2																		
3																		
[…]																		
N																		

(1) Parties should use an identical table for the purposes of calculating net emissions/removals in the base-year. The reference to the location of areas of land is not needed.

(2) In accordance with paragraph 8 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), a Party should provide information that demonstrates that the activity has taken place since 1 January 1990 and are human induced.

(3) Note that CH_4 and N_2O emissions from biomass burning of cropland residues are reported in the agricultural residues. N_2O emissions resulting from the use of fertilizer in agriculture are covered in Agriculture sector under category 4.D Direct emissions from soils. A Party should provide additional information where these emissions are included.

(4) According to paragraph 21 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), if a Party chooses not to account for a given pool in the commitment period, transparent and verifiable information to demonstrate that the pool is not a source should be provided. Note that the increase in carbon stock is positive (+) and the decrease is negative (-).

(5) Note that the signs for reporting emissions and removals should be negative (-) for net removals and positive (+) for net emissions.

(6) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to cropland management.

(7) Parties should provide the sum of area of all the units of land subject to the activity within the geographical location.

(8) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

Documentation box

Parties should provide detailed explanations on the land use, land-use change and forestry activities under Article 3.3 and elected activities under Article 3.4 in Chapter 7: Land use, land-use change and forestry of the NIR. Use this documentation box to provide references to relevant sections of the NIR if any additional information and/or further details are needed to understand the content of these tables.

TABLE A.6. GRAZING LAND MANAGEMENT [1], [2], [3]

Country
Year
Submission

LAND AREA			IMPLIED EMISSION FACTORS			ESTIMATES												
						INCREASES (+) AND DECREASES (-) IN C POOLS[4]										EMISSIONS/REMOVALS[5]		
Serial number	ID of geographical location[6]	Area[7] under grazingland management	Net change in above-ground biomass	Net carbon stock change	Net CO_2 emissions / removals	Increase of above-ground biomass [8]	Decrease of above-ground biomass[8]	Net change in above-ground biomass[8]	Net change in below-ground biomass	Net change in litter	Net change in dead wood	Soil		CO_2 -C emissions from liming[9]	Total carbon stock change	Net CO_2 emissions / removals	CH_4 emissions[8]	N_2O emissions[8]
												Net change in mineral soils	CO_2 - C emissions from organic soils					
		(ha)	(Mg C/ha)	(Mg C/ha)	(Mg CO_2/ha)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg $CO_{2)}$	(Gg)	(Gg)
		A	B	C	D	E	F	G=(E+F)	H	I	J	K	L	M	N = (G+H+I+J+K+L+M)	O	P	Q
Total																		
1																		
2																		
3																		
[…]																		
N																		

[1] Parties should use an identical table for the purposes of calculating net emissions/removals in the base-year. The reference to the location of areas of land is not needed.
[2] In accordance with paragraph 8 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), a Party should provide information that demonstrates that the activity has taken place since 1 January 1990 and are human induced.
[3] Note that CH_4 and N_2O emissions from biomass burning of agricultural residues are reported in the agricultural sector, under category 4.F Field burning of agricultural residues. N_2O emissions resulting from the use of fertilizer in agriculture are covered in Agriculture sector under category 4.D Direct emissions from soils. A Party should provide additional information where these emissions are included.
[4] According to paragraph 21 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), if a Party chooses not to account for a given pool in the commitment period, transparent and verifiable information to demonstrate that the pool is not a source should be provided. Note that the increase in carbon stock is positive (+) and the decrease is negative (-).
[5] Note that the signs for reporting emissions and removals should be negative (-) for net removals and positive (+) for net emissions.
[6] Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to grazingland management.
[7] Parties should provide the sum of area of all the units of land subject to the activity within the geographical location.
[8] Parties using a stock-change method (equation 3.1.2 of draft good practice guidance for LULUCF) do not need to provide separate estimates for both decreases and increases in carbon stocks from above-ground biomass. A net increase or a net decrease should be added in the appropriate column.
[9] Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

Table A.6.1 Grazing land management
Additional information on biomass burning[1]

Country
Year
Submission

Land area		Activity data		Estimates		
Serial number	ID of geographical location[2]	Biomass carbon released from burning	Area burned	CO_2	CH_4 emissions	N_2O emissions
		(Gg C)	(ha)	(Gg)	(Gg)	(Gg)
Total[3]						
1						
2						
3						
[…]						
N						

[1] Note that CH_4 and N_2O emissions from biomass burning of agricultural residues are reported in agriculture sector under category 4.F Field burning of agricultural residues.
[2] Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to grazingland management.
[3] Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Table A.6.2 Grazing land management
Additional information on fertilizers and liming[1]

Country
Year
Submission

Land area		Activity data			Estimates		
Serial number	ID of geographical location[2]	Amount of fertilizers used	Amount of lime used		N_2O due to the use of fertilizers	CO_2 - C emissions from liming	
			Limestone	Dolomite		Limestone	Dolomite
		(Mg)	(Mg)	(Mg)	(Gg N_2O)	(Gg C)	(Gg C)
Totals[3]							
1							
2							
3							
[…]							
N							

[1] Note that N_2O emissions resulting from the use of fertilizers are covered in agriculture sector under category 4.D Direct emissions from soil.
[2] Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to grazingland management.
[3] Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Documentation box
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TABLE A.7. REGEVETATION [1],[2]

Country
Year
Submission

LAND AREA			IMPLIED EMISSION FACTORS			ESTIMATES												
						INCREASES (+) AND DECREASES (-) IN C POOLS[3]										EMISSIONS/REMOVALS[4]		
Serial Number	ID of geographical location[5]	Area[6] under revegetation	Net change in above-ground biomass	Net carbon stock change	Net CO_2 emissions / removals	Increase of above-ground biomass[7]	Decrease of above-ground biomass[7]	Net change in above-ground biomass[7]	Net change in below-ground biomass	Net change in litter	Net change in dead wood	Net change in soil		CO_2 -C emissions from liming[6]	Total carbon stock change	Net CO_2 emissions / removals	CH_4 emissions[8]	N_2O emissions[8]
												Mineral soils	CO_2 - C emissions from organic soils					
		(ha)	(Mg C/ha)	(Mg C/ha)	(Mg CO_2/ha)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg C)	(Gg CO_2)	(Gg)	(Gg)
		A	B	C	D	E	F	G=(E+F)	H	I	J	K	L= (G+H+I+J+K)	M	N	O	P	Q
Total																		
1																		
2																		
3																		
[…]																		
N																		

(1) Parties should use an identical table for the purposes of calculating net emissions/removals in the base-year. The reference to the location of areas of land is not needed.

(2) In accordance with paragraph 8 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), a Party should provide information that demonstrates that the activity has taken place since 1 January 1990 and are human induced.

(3) According to paragraph 21 of the annex to draft decision -/CMP.1 (*Land use, land-use change and forestry*), if a Party chooses not to account for a given pool in the commitment period, transparent and verifiable information to demonstrate that the pool is not a source should be provided. Note that the increase in carbon stock is positive (+) and the decrease is negative (-).

(4) Note that the signs for reporting emissions and removals should be negative (-) for net removals and positive (+) for net emissions.

(5) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to revegetation.

(6) Parties should provide the sum of area of all the units of land subject to the activity within the geographical location.

(7) Parties using a stock-change method (equation 3.1.2 of draft good practice guidance for LULUCF) do not need to provide separate estimates for both decreases and increases in carbon stocks from above-ground biomass. A net increase or a net decrease should be added in the appropriate column.

(8) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Note: For ease of reference, each column is identified by a letter. Note that this will be removed in the final version of reporting tables.

Table A.7.1 Revegetation
Additional information on biomass burning

Country
Year
Submission

Land area		Activity data		Estimates		
Serial number	ID of geographical location[1]	Biomass carbon released from burning	Area burned	CO_2	CH_4 emissions	N_2O emissions
		(Gg C)	(ha)	(Gg)	(Gg)	(Gg)
Total[2]						
1						
2						
3						
[…]						
N						

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to revegetation.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

Table A.7.2 Revegetation
Additional information on fertilizers and liming

Country
Year
Submission

Land area		Activity data			Estimates		
Serial number	ID of geographical location[1]	Amount of fertilizers used	Amount of lime used		N_2O due to the use of fertilizers	CO_2 - C emissions from liming	
			Limestone	Dolomite		Limestone	Dolomite
		(Mg)	(Mg)	(Mg)	Gg N_2O	(Gg C)	(Gg C)
Total[2]							
1							
2							
3							
[…]							
N							

(1) Parties should provide a reference to the geographical location of the boundaries of lands that encompass units of land subject to revegetation.

(2) Parties are encouraged to provide estimates for each area of land. If a Party is not able to do so, it should provide estimates at an aggregate level and additional information on methods used to estimate CO_2-C, CH_4 and N_2O emissions.

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