

**SUBMISSION BY THE GOVERNMENT OF CANADA**  
**Revised UNFCCC Reporting Guidelines for Annex I Parties:**  
**Views on Reporting of CO<sub>2</sub> Emissions from Ammonia Production and Urea Application and on**  
**Reflecting the IPCC Supplementary Guidance on Wetlands**

**26 October, 2013**

**Context and Scope of this Submission**

At SBSTA 38, Parties were invited submit views on two outstanding issues in order to finalize and adopt 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 greenhouse gas inventories* (UNFCCC Reporting Guidelines) including the common reporting format (CRF) tables at the Conference of Parties (COP) 19 in Warsaw, Poland in November 2013. The outstanding issues are related to the reporting of carbon dioxide (CO<sub>2</sub>) emissions related to ammonia production and urea application and how to reflect the Intergovernmental Panel on Climate Change (IPCC) *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands* (Wetlands Supplement) within the Revised UNFCCC Reporting Guidelines.

Canada welcomes this opportunity and is pleased to provide the following views below for consideration in upcoming discussions on this item at SBSTA 39.

**1) Reporting of CO<sub>2</sub> Emissions from Ammonia Production and Urea Application**

The COP, by decision 15/CP.17, agreed to implement the use of the 2006 IPCC Guidelines through the revised UNFCCC Reporting Guidelines.

It is common practice to recover a portion of the CO<sub>2</sub> generated during ammonia production and utilize it as feedstock in the production of urea. This CO<sub>2</sub> can be released subsequently, when urea or urea-based nitrogen fertilizer is applied to a soil for crop production, or urea is used as a catalyst in road transportation. The 1996 IPCC Guidelines consider this intermediate generation/recovery process of CO<sub>2</sub> to be short-term storage; consequently, all the CO<sub>2</sub> resulting from ammonia production are allocated to the Industrial Process sector under ammonia production, regardless of its subsequent use in urea production. However, in the 2006 IPCC Guidelines, the emissions of the CO<sub>2</sub> recovered during ammonia production are no longer allocated to the Industrial Processes sector but rather, where and when they are actually released to the atmosphere. This means emissions due to the use of urea are estimated and reported either in the Agriculture or Transport sector (i.e. application of fertilizers and/or use of catalysts, respectively).

Canada fully acknowledges the improvements in methodological consistency and clarity brought about by the 2006 IPCC Guidelines for the estimation of anthropogenic emissions and removals of greenhouse gases and believes that the UNFCCC Reporting Guidelines should remain consistent with the purpose of national inventories; that is to attribute the emission or removal of a greenhouse gas to a specific source at a specific time and location. Canada believes that the separate reporting of actual emissions at the points of ammonia production and of urea utilisation reduces the number of assumptions made on the fate of the captured CO<sub>2</sub>, thereby reducing uncertainties and improving the determination of real mitigation options

Presumably future IPCC guidance could expand to include a more accurate allocation of CO<sub>2</sub> emissions from additional uses of urea. Canada also believes that the revised UNFCCC Reporting Guidelines should facilitate the implementation by Parties of straightforward inventory improvements such as this one.

## **2) Reflecting the IPCC Wetlands Supplement in the revised UNFCCC Reporting Guidelines**

Canada welcomes the *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands* (Wetlands Supplement) which address gaps on wetlands and organic soils in the 2006 IPCC guidelines<sup>1</sup>. Given the importance in preserving and enhancing soil carbon stocks, guidance on rewetting of wetlands is timely in supporting the development of estimates of decreased emissions and increased removals due to rewetting.

Canada has thoroughly reviewed the content and structure of the final revised CRF tables posted by the Secretariat<sup>2</sup> for the Land use, Land-Use Change and Forestry (LULUCF) and Agriculture Sectors, and has identified changes that would facilitate implementing the guidance in the Wetlands Supplement. Canada's recommendations emphasize CRF table edits that would provide greater flexibility, improve transparency and comparability, and facilitate national inventory reviews. Specific proposed modifications to the CRF tables can be found in Annex I and detailed illustration of edits to Table 4(II) can be found in Annex II. The following section presents overarching issues related with how guidance in the Wetlands Supplement will impact national inventory reporting.

### ***Issue # 1 - Allowing Adequate Time for Implementation***

Upon release of the Wetlands Supplement, parties will need to consider concurrently guidance on wetlands in the 2006 IPCC guidelines as well as updated and new guidance provided in the Wetlands Supplement. Given the wide scope of the guidance in the Wetlands Supplement, countries should be granted an adequate time period to become familiar with the guidance before its implementation in national inventory submissions becomes mandatory. Assuming the Wetlands Supplement will be released near the end of 2013, Canada suggests that guidance therein be implemented no later than 2017. This date would not prohibit Kyoto Protocol Parties in utilising guidance in the Wetlands Supplement for the second commitment period reporting starting in 2015.

### ***Issue # 2 - Recognizing that the methodological guidance is not specific to land-use categories***

The Wetlands Supplement implements a new approach for providing guidance for national greenhouse gas inventories in that guidance is presented irrespective of land-use categories in the LULUCF Sector. As guidance provided in the Wetlands Supplement can apply to any land category, all CRF LULUCF Sectoral tables (and some Agriculture tables) may require modifications. See edits # 1, 2, 6, 7, 8, 9 and 10 in Annex I.

### ***Issue # 3 – Improving consistency in reporting of wet and dry, mineral and organic soils***

Mineral and organic soils can occur in any land category (e.g. energy and mineral development in boreal peatlands would be considered Settlement on organic soils). The hydrological conditions in both mineral and organic soils have a large control on the land-atmosphere exchange of greenhouse gases. Therefore

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<sup>1</sup> <http://www.ipcc-nggip.iges.or.jp/home/wetlands.html>

<sup>2</sup> Final (12 June 2013) version of the CRF Tables for further consideration at SBSTA 39:  
[http://unfccc.int/national\\_reports/annex\\_i\\_ghg\\_inventories/reporting\\_requirements/items/7691.php](http://unfccc.int/national_reports/annex_i_ghg_inventories/reporting_requirements/items/7691.php)

drainage and rewetting activities will drastically change greenhouse gas emissions and removals on lands where these activities take place. In this context, there is a need for consistent reporting of wet and dry, mineral and organic soils in all LULUCF Sectoral tables. See edits # 1, 2, 6, 7, 8, 9 and 10 in Annex I.

***Issue # 4– Reporting of non-CO<sub>2</sub> emissions from new wetland types***

CRF tables could require modifications to facilitate implementing any new guidance on non-CO<sub>2</sub> emissions from new wetland types. See edits # 5, 6, 7, 8, 9 and 10 in Annex I.

***Issue # 5 – Improving transparency in reporting managed wetlands type***

The Wetlands category may include additional types of managed wetlands other than Peat extraction and Flooded land as defined by the 2006 IPCC guidelines. To improve transparency in reporting, managed wetlands that do not occur already under the other land categories and do not meet the definition of Peat Extraction or Flooded Land should be added as new child nodes under Other Wetlands. See edits # 3 and 4 in Annex I.

## Annex I: Proposed CRF Table Modifications

### LULUCF Sector Tables

Edit #	Table(s)	Proposed Modification	Rationale
1	<b>Tables 4.A–4.F</b>	<p>Clearly separate the reporting of activity data and soil carbon stock change in mineral and organic soil categories by inserting a column under ACTIVITY DATA so that it contains the following three subcategories:</p> <ul style="list-style-type: none"> <li>• Area of Mineral Soils</li> <li>• Area of Organic Soils</li> <li>• Total Area</li> </ul> <p>Include the following footnote with the ‘Total Area’ column: “The total area should equal the area of mineral soil plus the area of organic soil by subcategory”.</p> <p>Insert a column under “Net carbon stock change in soils” to match the three activity data subcategories listed above.</p> <p>The following footnote should be deleted: “Implied carbon-stock-change factors for mineral soils are calculated by dividing the net carbon (C) stock change estimate for mineral soils by the difference between the total area and the area of organic soils.”</p> <p>The following footnote can remain: “When Parties cannot estimate carbon stock changes for organic and mineral soil separately, these should be reported under mineral soils.”</p>	<p>To improve transparency in reporting activity data and soil carbon stock change for both mineral and organic soils.</p> <p>*Note that mineral and organic soils may occur in any LULUCF land category.</p>
2	<b>Tables 4.A–4.F and Table 4(II)</b>	<p>At the end of the following footnote “Land categories may be further divided according to climate zone, ecological zone or national land classification, soil type, management system vegetation type and tree species.” add the following sentence “When Parties estimate emissions and removals or carbon stock change on dry and wet soils separately, they are encouraged to use this column to provide this disaggregation.”</p>	<p>To enable reporting of activity data, carbon stock change and net emissions and removals on both dry and wet soils. This will facilitate separate reporting of rewetted soils.</p>
3	<b>Table 4.D</b>	<p>Divide both ‘Wetlands remaining wetlands’ and ‘Land converted to wetlands’ by the three following subcategories: ‘Peat extraction’, ‘Flooded land’ and ‘Other wetlands’.</p> <p>Include the following footnote with the ‘Other wetlands’ sub category: “Managed wetlands that do not occur already under the other LULUCF land categories and do not meet the definition of Peat Extraction or Flooded Land can be reported here.”</p>	<p>Improves transparency and comparability in reporting current Wetlands subcategories (Peat extraction and Flooded land) and provides more flexibility for reporting other Wetlands subcategories.</p>
4	<b>Table 4.D</b>	<p>Improve flexibility in reporting conversions that can occur between Other Wetlands and current Wetlands subcategories (Peat extraction and Flooded land) through the following modification:</p> <p>Under category D.1. Wetlands remaining wetlands, insert subcategory 1.4 ‘Other’ to allow flexibility in the addition of child nodes to report the possible conversions between Other Wetlands, and Peat extraction or Flooded land.</p>	<p>Conversions between Other Wetlands sub-categories and current Wetlands subcategories (Peat extraction and Flooded land) can occur. For example: conversion from unmanaged wetland to Peat Extraction might be reported under “Wetland remaining Wetland” instead of “Land converted to Peat Extraction” if the management conversion happens on a land that is considered “Wetland” according to the national land classification, i.e. there is not a land-use change according to LULUCF land categories.</p>
5	<b>Table 4.D</b>	<p>Delete CH<sub>4</sub> and N<sub>2</sub>O columns from this table, since these emissions can be reported in tables 4(I), 4(II), 4(III) and 4(V),</p>	<p>Including these columns in table 4.D could be confusing, could</p>

		depending on the activity, and under the applicable land/land-use change as appropriate.	increase the risk of double counting and is not consistent with the other LULUCF sectoral background data tables.
6	<b>Table 4(II)</b>	<p>Include all LULUCF land categories in the table. For the Cropland and Grassland categories the cells under the N<sub>2</sub>O emissions column should be shaded grey.</p> <p>Insert a new footnote for the Cropland and Grassland categories stating: "Emissions of nitrous oxide (N<sub>2</sub>O) from cultivation of organic agricultural soils should be reported in the Agriculture sector in Table 3.D."</p>	Organic soils can occur in any LULUCF land category. However, as N <sub>2</sub> O emissions from cultivation of organic agricultural soils are to be reported in the Agriculture sector, this table requires edits and explanatory footnotes.
7	<b>Table 4(II)</b>	<p>This table should provide the option for Parties to report CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions due to management and drainage of organic soils. It could function similar to Table 4(V) Biomass Burning, where Parties are provided the option of reporting CO<sub>2</sub> emissions in this table or in Tables 4.A–4.F as applicable. Hence, we propose the following changes:</p> <p>Insert column 'CO<sub>2</sub> emissions ' and change table title to: "Management and drainage of organic soils".</p> <p>Insert a new footnote related to the new CO<sub>2</sub> emissions column stating that: "If carbon dioxide (CO<sub>2</sub>) emissions from management and drainage of organic soils are not already included in tables 4.A–4.F, they should be reported here. This should be clearly documented in the documentation box and in the national inventory report (NIR). Double counting should be avoided. Parties that include all carbon stock changes in the carbon stock tables (4.A – 4.F), should report "IE" (included elsewhere) in this column."</p>	Providing the option to report all emissions from management and drainage of organic soils in one table would improve transparency, comparability and facilitate inventory reviews.
8	<b>Table 4(III)</b>	<p>Provide a place to report CH<sub>4</sub> emissions from wet mineral soils by inserting column 'CH<sub>4</sub> emissions' and change table title to: "Non-CO<sub>2</sub> emissions resulting from change in land-use or management of mineral soils". This option also includes:</p> <ol style="list-style-type: none"> <li>i. Inserting a column 'Subdivision' and including the same footnote as recommended in edit #2 to enable separate reporting of dry and wet soils.</li> <li>ii. Inserting a new footnote in the N<sub>2</sub>O emissions column stating that: "Emissions of N<sub>2</sub>O may include those associated with nitrogen (N) mineralization/immobilization associated with loss/gain of soil organic matter".</li> <li>iii. Inserting a new footnote in the CH<sub>4</sub> emissions column stating that: "Emissions of CH<sub>4</sub> may include those associated with management of wet mineral soils."</li> </ol>	If there is guidance on CH <sub>4</sub> emissions from wet mineral soils in the guidelines then there is currently no place to report these emissions. Therefore, the proposed table modifications would enable reporting of non-CO <sub>2</sub> emissions from wet mineral soils.
9	<b>Table 4(II)</b>	<p>As an alternative to edits 6, 7 and 8 described above, the following option is provided:</p> <p>Report all emissions and removals from drainage and management of organic soils as well as wet soils in a revised version of table 4(II). The table title should be changed to: "Management, drainage and rewetting of wetland soils."</p> <p>See proposal for this revised version in Annex II</p>	The methodologies for calculating soil carbon stock change and CO <sub>2</sub> , CH <sub>4</sub> and N <sub>2</sub> O emissions and removals for organic and wet soils differ from the guidance given for dry mineral soils. The proposed table would enable separate reporting of all emissions and removals due to management of wetland soils.
10	<b>Table 4(V)</b>	Insert a column 'Subdivision' and include a footnote stating that: "When Parties estimate emissions from biomass burning on mineral and organic soils separately they are encouraged to use this column to provide this disaggregation."	To enable distinct reporting of activity data and greenhouse emissions for biomass burning on lands with mineral and

			<p>organic soils.</p> <p>*Note that mineral and organic soils may occur in any LULUCF land category.</p>
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## Annex II: New CRF Table Proposal

**TABLE 4(II) SECTORAL BACKGROUND DATA FOR LAND USE, LAND-USE CHANGE AND FORESTRY**

**Management, drainage and rewetting of wetland soils<sup>1</sup>**

(Sheet 1 of 1)

Year  
Submission  
Country

*Canada's Proposal for modifications of this table*

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		ACTIVITY DATA	IMPLIED EMISSION FACTORS			EMISSIONS		
Land-use category	Subdivision <sup>(3)</sup>	Area (kha)	CO <sub>2</sub> per area (kg CO <sub>2</sub> /ha)	CH <sub>4</sub> per area (kg CH <sub>4</sub> /ha)	N <sub>2</sub> O-N per area <sup>(4)</sup> (kg N <sub>2</sub> O-N/ha)	CO <sub>2</sub> <sup>(5)</sup>	CH <sub>4</sub>	N <sub>2</sub> O
						(kt)		
<b>Total for all land use categories</b>								
<b>A. Forest land</b>								
Organic soils								
Mineral soils								
<b>B. Cropland</b>								
Organic soils <sup>(2)</sup>								
Mineral soils								
<b>C. Grassland</b>								
Organic soils <sup>(2)</sup>								
Mineral soils								
<b>D. Wetlands</b>								
Peat Extraction								
Organic soils								
Mineral soils								
Flooded land								
Organic soils								
Mineral soils								
Other Wetlands								
Organic soils								
Mineral soils								
<b>E. Settlements</b>								
Organic soils								
Mineral soils								
<b>F. Other Land</b>								
Organic soils								
Mineral soils								
<b>H. Other (please specify)</b>								

<sup>(1)</sup> Managed wetland soils refer to organic soils and wet mineral soils (e.g. aquatic or gley soils). Refer to the Annex 3A.5 of chapter 3, volume 4 of the 2006 IPCC Guidelines and the 2013 Wetlands Supplement for descriptions of wetland soils.

<sup>(2)</sup> Nitrous oxide (N<sub>2</sub>O) emissions from drainage associated with cultivation of organic agricultural soils should be reported in the Agriculture Sector in Table 3.D as applicable.

<sup>(3)</sup> Land categories may be further divided according to climate zone, ecological zone or national land classification, soil type (e.g. "nutrient rich" and "nutrient poor" organic soils), management system (e.g. drainage or rewetting) and vegetation type. When Parties estimate emissions and removals on dry and wet soils separately, they are encouraged to use this column to provide this disaggregation.

<sup>(4)</sup> In the calculation of the implied emission factor, N<sub>2</sub>O emissions are converted to N<sub>2</sub>O-N by multiplying by 28/44.

<sup>(5)</sup> If carbon dioxide (CO<sub>2</sub>) emissions from management, drainage and rewetting of wetland soils are not already included in tables 4.A-4.F, they should be reported here. This should be clearly documented in the documentation box and in the national inventory report (NIR). Double counting should be avoided. Parties that include all carbon stock changes in the carbon stock tables (4.A-4.F), should report "IE" (included elsewhere) in this column.

**Documentation box:**

Parties should provide detailed explanations on the land use, land-use change and forestry sector in Chapter 6: Land Use, Land-Use Change and Forestry (CRF sector 4) of the national inventory report (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.