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Item 7 (d) of the provisional agenda

Methodological issues under the Convention

Intergovernmental Panel on Climate Change guidelines for national greenhouse gas inventories

**Experience with and considerations relating to the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, and further considerations relating to the future revision of the UNFCCC reporting guidelines for Annex I Parties**

**Submissions from Parties**

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its twenty-sixth session, invited Parties to submit, by 15 February 2009, information on their experience, further considerations related to the future revision of the UNFCCC reporting guidelines for Parties included in Annex I to the Convention<sup>1</sup> and the considerations related to the *2006 Guidelines for National Greenhouse Gas Inventories*<sup>2</sup> for compilation into a miscellaneous document, for consideration by the SBSTA at its thirtieth session (FCCC/SBSTA/2007/4, para. 56).
2. The secretariat has received eight such submissions. In accordance with the procedure for miscellaneous documents, these submissions are attached and reproduced\* in the language in which they were received and without formal editing.

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<sup>1</sup> “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories” (FCCC/SBSTA/2006/9).

<sup>2</sup> <<http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm>>. An overview can be found in volume 1.

\* These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

**FCCC/SBSTA/2009/MISC.3**

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\* This submission is supported by Bosnia and Herzegovina, Croatia, Montenegro, Serbia and Turkey.

PAPER NO. 1: ARGENTINA

## Submission for SBSTA

### 2006 IPCC Guidelines for National Greenhouse Gas Inventories

February 2009

In its Report of the Subsidiary Body for Scientific and Technological Advice on its twenty-sixth session, held at Bonn from 7 to 18 May 2007 (document FCCC/SBSTA/2007/4), SBSTA invited Parties to submit to the secretariat, by 15 February 2009, information on their experience, further considerations related to the future revision of the UNFCCC reporting guidelines for Annex I Parties and the considerations related to the 2006 IPCC Guidelines for compilation into a miscellaneous document.

Argentina welcomes the development and the availability of the 2006 IPCC Guidelines, which retain the methodological approaches of the previous Guidelines, integrate Good Practice Guidance, provide a unified treatment of cross-cutting issues and update data and methods where new knowledge has been made available.

However, Argentina would like to share the following comments on the 2006 IPCC Guidelines. Although Argentina has not yet undertaken thus far the development of its Third National Communication; therefore, the views reported below draw from the experience of a number of local experts that have been using the new Guidelines within the framework of different projects.

With respect to emissions from land use and land use change, Argentina welcomes the changes made in the 2006 Guidelines to avoid the double counting of the N<sub>2</sub>O emissions produced by the biological nitrogen fixation and residues decaying. This issue was raised by Argentina in its 2<sup>nd</sup> National Communication officially submitted to the UNFCCC's Secretariat in December 2007.

Regarding emissions of CO<sub>2</sub> in the Fugitive Emissions in the oil and gas sector, we believe that the inclusion of this greenhouse gas in the 2006 Guidelines will improve the accuracy of the inventory in this sector. The local experts have indicated that the presentation of fugitive emission categories is largely clarified and the corresponding worksheets now contain, where appropriate, entrances for the three GHGs. The absence of CO<sub>2</sub> in the earlier worksheets and in the corresponding software has given some extra work to the local inventory team when organizing the calculations.

In addition, the new chapter on CO<sub>2</sub> capture and storage together with the improved presentation of the fugitive categories facilitates the treatment of fugitive emissions associated with enhanced oil recovery.

Concerning fuel combustion categories, Argentina notes that the new Guidelines provide a better differentiation between the Reference and the Sectoral Approach, which can be readily implemented through the use of appropriate worksheets and improved default emission factors.

We regret, however, that the 2006 IPCC Guidelines does not consider the potential effect of global warming precursor gases, such as NO<sub>x</sub>, NMVOCs and CO, since this omission will diminish the accuracy of the inventories, in particular in the energy sector.

In the agricultural sector, substantial differences were detected in the estimation of methane emissions from manure management when Tier 1 or Tier 2 is used, mainly in the swine sector. We suggest the

IPCC to closely review the default emission factors given in the Guidelines in order to reduce the uncertainty introduced in the calculations.

In relation to the waste sector, we believe that it could be helpful that the Guidelines introduce recommendations on how to estimate the gas recovery efficiency from landfill sites where a gas recovery plant is installed, considering that recovery efficiencies introduce a high level of uncertainty in the estimation of methane emissions from these landfills. Default values of landfill gas recovery efficiency should be given as a function of the landfill main design features and historic operation practices. On this regard, we suggest that the IPCC takes stock and builds on the results and experiences of the landfill gas recovery projects that have been developed in the last few years, mostly under CDM, in different regions of the world.

Finally, we would like to highlight the importance of completing the software that facilitates the use of the Guidelines as well as of giving the opportunity to the potential users to review and provide inputs for further improvement in the design of the software.

PAPER NO. 2: AUSTRALIA

**AUSTRALIA**

**Submission to SBSTA on Guidelines for Inventories and Reporting**

15 February 2009

Australia welcomes the opportunity to make a submission on experience gained with the *2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories* (2006 IPCC Guidelines)<sup>1</sup> and on considerations related to revision of the FCCC reporting guidelines on annual inventories (FCCC Reporting Guidelines).<sup>2</sup> This submission is pursuant to the invitation at SBSTA's twenty-sixth session (FCCC/SBSTA/2007/4)<sup>3</sup>, for consideration at its thirtieth session in June 2009.

Australia, like many Parties, has gained considerable experience in implementing relevant elements of the 2006 IPCC Guidelines. We are pleased to be able to offer our views on the use of the guidelines up to 2012 and beyond, and share our practical experience in implementing the 2006 Guidelines.

Australia has approached the assessment of the 2006 IPCC Guidelines, and any required revisions, within the context of ensuring the accounting framework used by the Parties:

- Respects the policy mandate of the UNFCCC and its Kyoto Protocol
- Facilitates Parties improving the accuracy of estimations and moving toward more robust inventories
- Promotes comparability between Parties' inventories

**Developing more robust inventories**

Decisions the Parties might take in relation to the application of the 2006 IPCC Guidelines should distinguish between the needs of pre-2012 and post-2012 accounting.

*Policy considerations*

For some inventory methods and reporting, the 2006 IPCC Guidelines contain approaches based on policy that is not the product of decision making processes by the Parties. The policy framework for the reporting of emissions and removals is a matter for the Parties, and this is separate to technical guidance on the estimation of emissions and removals provided by the IPCC. In this regard, discussion on the reporting rules for land sector emissions and removals in a post-2012 accounting framework should continue under AWG-KP item 3(b) on LULUCF.

Before the Parties could decide to use the 2006 IPCC Guidelines in the post-2012 period, the guidelines will need to be reviewed in light of the post-2012 accounting framework agreed by the Parties. The post-2012 accounting framework may include new elements – such as treatments for natural disturbance - and new reporting needs – such as reducing emissions from deforestation and forest degradation in developing countries. The review will need to take into account various considerations, including but not limited to:

- Parties' experience in implementing the 2006 IPCC Guidelines;
- The need for new methodologies and/or improvements in methodologies and available information; and
- Parties' capacity for reporting.

These considerations are elaborated in our experiences, provided below. Based on the outcomes of this review, Parties could make a more informed decision on the adoption of guidelines for post-2012 accounting.

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<sup>1</sup> <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>

<sup>2</sup> FCCC/SBSTA/2006/9 <http://unfccc.int/resource/docs/2006/sbsta/eng/09.pdf>

<sup>3</sup> Paragraphs 53 to 57 <http://unfccc.int/resource/docs/2007/sbsta/eng/04.pdf>

For the first commitment period (2008-2012), we note that the 2006 IPCC Guidelines do not apply for the purpose of ascertaining compliance with commitments under Article 3 of the Kyoto Protocol. In the interests of promoting the robustness of emissions and removals estimates, all Parties should be invited to continue the voluntary use of the emission factors and estimation methodologies contained within the 2006 IPCC Guidelines for the remainder of the first commitment period, subject to time series consistency with the baseline. Voluntary use could be enhanced by clear instructions on the elements of these guidelines that would be appropriate to use and how they should be applied.

#### *Comparability*

For Parties to understand how we are each contributing to anthropogenic greenhouse gas emissions, inventories need to be comparable between Parties and capable of tracking trends, irrespective of national approaches to estimation. We also need an enabling environment in which Parties are supported in improving the accuracy of estimation and moving progressively towards more robust inventories. The guidelines we adopt for a post-2012 outcome need to facilitate achieving these goals.

Following adoption of the guidelines to apply in the post-2012 period, a review of the common reporting format (CRF) tables will be required to identify and incorporate changes. Parties may need to make available additional funding to the Secretariat to update the CRF reporter tool and other information technology infrastructure.

Robust, comparable and verifiable inventories will be an essential component of a post-2012 outcome. Improvements to and consolidation of existing accounting guidance will be fundamental to achieving this outcome. We propose a number of areas for improving this guidance in the following.

#### **Experience on implementation of the 2006 IPCC Guidelines and other considerations**

Australia is pleased to provide comments on the following issues.

- General experience on implementation
- Reporting tables
- Treatment of the land sector
- 'Managed lands' and emissions from natural disturbance
- Inter-annual variability
- Tiers
- Mandatory versus voluntary reporting of carbon emitted in gases other than CO<sub>2</sub>
- Indirect N<sub>2</sub>O emissions from the atmospheric deposition of nitrogen in NO<sub>x</sub> and NH<sub>3</sub>

#### *General experience on implementation*

Australia has implemented emission factors and methods from the 2006 IPCC Guidelines in a number of sectors, principally in the solid waste, indirect N<sub>2</sub>O emissions from agricultural soils and the transport subsectors. The new factors and methods have been adopted following the review of these categories through our normal improvement processes.

The 2006 IPCC Guidelines provide more accurate methods for estimating emissions and updated EFs. For example, within the transport subsector, the 2006 IPCC Guidelines provide EFs for new aircraft fleet, technologies and fuel characteristics, and as such will better reflect emissions than the defaults from the Revised 1996 IPCC Guidelines.

The 2006 IPCC Guidelines provide an appropriate reference manual for default methods and EFs which should be available for use by Parties on a voluntary basis.

#### *Reporting tables*

Parties invested significant effort developing the current CRF tables. These CRF tables were modified from the original Revised 1996 IPCC Guidelines tables to make them more user-friendly and practical for review purposes (e.g. introduction of implied EFs and other background information). However, the 2006 IPCC Guidelines CRF tables do not include these enhancements, which are very important for reviews.

*Treatment of the land sector*

The IPCC 2006 IPCC Guidelines introduce significant changes for the land sector. Consistency in the estimation and reporting of all forms of greenhouse gases is highly desirable. Whereas the Revised 1996 IPCC Guidelines treat LULUCF and agriculture separately, the 2006 IPCC Guidelines integrate these into a single category of Agriculture, Forestry and Other Land Uses (AFOLU). We welcome this approach in principle, but note that true integration of the estimation of emissions and removals is only likely to occur for a limited number of Parties. The Revised 1996 IPCC Guidelines provide separate and inconsistent estimation methods for CO<sub>2</sub> and non-CO<sub>2</sub> emissions from soils under the LULUCF and agriculture sectors. The 2006 IPCC Guidelines attempted to remove this inconsistency by introducing the AFOLU construct, while leaving open the option for Parties to continue using separate estimation methods. Our experience is that the AFOLU construct may still result in inconsistencies in the way Parties report these emissions.

The new reporting structure in AFOLU allows Parties to report CO<sub>2</sub> emissions from fires and direct N<sub>2</sub>O emissions from managed soils either under the 'land' categories (3B) or the 'Aggregate sources and non-CO<sub>2</sub> emissions from sources on land' categories (3C)<sup>4</sup>. It is likely that the majority of Parties will continue reporting in the aggregate reporting categories. However, Parties may nevertheless report these emissions by land categories. We consider this will create inconsistency in reporting.

*'Managed lands' and emissions from natural disturbance*

A major change to land sector guidelines, first introduced in the *2003 IPCC Good Practice*

*Guidance for LULUCF* (IPCC GPG for LULUCF), is the 'managed lands' proxy for determining anthropogenic emissions and removals. The consequence of using the 'managed lands' proxy is that the estimation process now 'factors-in' emissions and removals from natural disturbances on these lands. This is an issue that requires substantive consideration by the Parties.

Current reporting using the IPCC GPG for LULUCF allows Parties to either symmetrically include, or exclude, both CO<sub>2</sub> removals and emissions from major natural disturbances.<sup>5</sup> The premise of this approach is that there should be symmetry in accounting for emissions from natural disturbances and any subsequent removals from the recovery process.

In contrast, the 2006 IPCC Guidelines require the highly variable non-anthropogenic emissions from natural disturbances and removals from recovery, to be included. Australia's experience is that the scale and variability of natural disturbances masks any anthropogenic trends in our national inventory.

We consider the natural disturbance provisions in the IPCC GPG for LULUCF are more consistent with the principles of the Convention and should be retained and possibly elaborated. We have outlined in previous submissions, to the AWG-KP and AWG-LCA, why these issues of policy and principle should be made by Parties rather than imposed by a technical body.<sup>6</sup>

The policy framework for the reporting of emissions and removals is a matter for Parties, and this is separate to the guidance on the estimation of emissions and removals provided by the IPCC. In

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<sup>4</sup> From the reporting tables in Volume 1 of the Guidelines

<sup>5</sup> IPCC (2003) Good Practice Guidance for Land Use, Land-Use Change and Forestry, Chapter 3 LUCF Sector Good Practice Guidance, Section 3.2.1.4.2.

<sup>6</sup> <http://www.climatechange.gov.au/international/unfccc-submissions.html>

this regard, we consider that discussion on the reporting rules for land sector emissions and removals in a post-2012 accounting framework should continue under AWG-KP item 3(b) on LULUCF.

#### *Inter-annual variability*

Another feature of the 2006 IPCC Guidelines that may have impacts on accounting policy is the removal of provision for smoothing of inter-annual variability in AFOLU. In our experience, interannual climatic variability is a variation in climatic conditions from year-to-year that leads to substantial annual variations in the rate of net carbon emissions and removals.

There are a range of approaches to smoothing inter-annual variability, based on intensity of estimation methods (Tier 1, 2 or 3) and national circumstances.

- In the Revised 1996 IPCC Guidelines, rolling averages can be used to smooth volatility in accounts derived from factors such as short term climate variability. However, Volume 1 of the 2006 IPCC Guidelines requests annual reporting and removes provisions for rolling averages. This means that Parties have no opportunity to smooth variability in the reporting process to reflect the underlying trends due to human management practices.

- Volume 4 of the 2006 IPCC Guidelines states that it is appropriate to apply multi-year sampling approaches to measurements, so that either activity data or carbon stock changes reflect an average over several years. As a consequence, Parties with less intensive (Tier 1 and some Tier 2) estimation methods can produce smoothed inventory estimates through averaged inputs to the estimation process. The Volume 4 approach is not available to Parties that apply more frequent measurements or apply models in inventory estimation, which are typical of Parties that use the most-intensive (Tier 3) of IPCC estimation methods.

This situation disadvantages Parties using the most-intensive (Tier 3) methodologies, and makes the inventories of those Parties that report using annual climate data, and the inventories of those that use longer-term averages, less comparable.

#### *Tiers*

Our experience is that the 2006 IPCC Guidelines do not provide sufficient elaboration on good practice for Tier 3 methodologies. Elaboration will be important to Parties developing these methods, which are technically demanding, and often Party specific. Elaboration will create certainty for Parties, as adherence to properly elucidated good practice guidance should remove uncertainty as to which criteria should be applied during inventory review.

#### *Reporting of carbon emitted in gases other than CO<sub>2</sub>*

Reporting of indirect CO<sub>2</sub> emissions from non methane volatile organic compounds (NMVOCs) in the Solvents and Other Product Use sector is optional under the Revised 1996 IPCC Guidelines. The 2006 IPCC Guidelines indicate that for all sectors “these CO<sub>2</sub> inputs could be included in national inventories”. The use of “could” implies that doing so is still optional. However, if the 2006 IPCC Guidelines are adopted post 2012, the FCCC Reporting Guidelines should make the optional nature of the reporting explicit. The language in the 2006 IPCC Guidelines is likely to be open to ambiguous interpretation.

#### *Indirect N<sub>2</sub>O emissions from the atmospheric deposition of nitrogen in NO<sub>x</sub> and NH<sub>3</sub>*

In previous IPCC guidance, atmospheric deposition is only calculated from nitrogen sourced from the agriculture sector. The 2006 IPCC Guidelines extend this practice to all sectors. However, the 2006 IPCC Guidelines are unclear in explaining how these emissions are to be reported.

Atmospheric deposition from AFOLU sources of nitrogen appears to remain as an AFOLU reporting category (3.C.5 *Indirect N<sub>2</sub>O Emissions from Managed Soils*), but the guidelines also indicate that atmospheric deposition emissions arising from nitrogen sources from AFOLU and the other sectors are to be reported in category ‘5.A. *Indirect N<sub>2</sub>O Emissions from the Atmospheric Deposition of Nitrogen in NO<sub>x</sub> and NH<sub>3</sub>*’.



## 2006 IPCC Guidelines

15 February 2009

### Background

At its 26<sup>th</sup> session, the Subsidiary Body for Scientific and Technological Advice (SBSTA) encouraged Parties in a position to do so to gain experience with the 2006 IPCC Guidelines. It also invited Parties to submit to the secretariat, by 15 February 2009, information on their experience, further considerations related to the future revision of the UNFCCC reporting guidelines for Annex I Parties and the considerations related to the 2006 IPCC Guidelines.

This submission provides an overview of Canada's perspective on the 2006 IPCC Guidelines, along with related considerations, including on a future revision of the UNFCCC reporting guidelines for Annex I Parties.

### General experience with 2006 Guidelines

Canada fully acknowledges the improvements in methodological consistency and clarity brought about by the 2006 Guidelines for the estimation of anthropogenic emissions and removals of greenhouse gases. Canada notes that countries are encouraged to adopt methodological improvements relevant to their national circumstances, and that several countries – including Canada - have already implemented improvements made available in the 2006 Guidelines. Thus, Canada fully supports the use of improved methodologies provided in these Guidelines.

Canada continues to have three concerns, however, with the 2006 Guidelines.

First, over the inclusion in reported estimates of greenhouse gases produced by the atmospheric oxidation of emitted methane and non-methane volatile organic compounds<sup>1</sup>. Canada notes that this issue was addressed during the adoption of the 2006 Guidelines by the Intergovernmental Panel on Climate Change (IPCC) by inserting a paragraph in the Overview Chapter indicating that it might be more accurate in some cases to estimate CO<sub>2</sub> emissions from the total carbon emitted.

In Canada's opinion the 2006 IPCC Guidelines do not provide sufficient clarity that such instances are limited to conditions where immediate atmospheric oxidation occurs. (eg during the year of emission, typically from combustion sources). Barring this condition the inclusion of these indirect emissions not only increases the inaccuracy of a national inventory, but is also inconsistent with the purpose of an annual national inventory; that is, to attribute an emission to a specific source and a specific time.

For Canada, the implementation of this approach would significantly increase the uncertainty associated with estimates of fugitive emissions from the coal mining, and oil and gas sectors, where discharges of methane and non-methane volatile organic compounds are of a comparable magnitude to those of carbon dioxide.

Canada therefore wishes to see additional clarity provided on the appropriate conditions under which precursors should be included in estimates of carbon dioxide emissions. This could be accomplished as part of future revisions to the reporting guidelines for Annex I Parties. Canada believes that the refinement of global warming potentials is the appropriate means for addressing the mid-term atmospheric oxidation of these precursors into greenhouse gases.

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<sup>1</sup> Volume 1, chapter 7, section 2

Second, Canada believes that extending the estimation of indirect N<sub>2</sub>O emissions to all domestic sources of atmospheric NO<sub>x</sub> and NH<sub>3</sub> (Vol 1, Chapter 7, section 3) is a commendable attempt at comprehensiveness. Indeed, indirect emissions are already reported in the Agriculture sector. However, this considerable extension of coverage should be based on sound, verifiable scientific evidence, as opposed to the proposed approach, which is purely conceptual. There is currently no verifiable means to relate indirect N<sub>2</sub>O emissions to their ultimate sources, which seriously hampers the setting of mitigation goals. Canada cannot accept this as an improvement over the current approach in the absence of significant advances in supporting scientific knowledge.

Third, since the implementation in 2005 of the IPCC Good Practice Guidance for Land Use, Land-use Change and Forestry, the limitations of the current methodological foundation for the accounting of anthropogenic emissions and removals in the LULUCF sector have become more apparent, notably the failure of the land-based approach to factor out the forest age-class structure resulting from historical events, both anthropogenic and natural, the important inter-annual variability caused by natural disturbances, and the predominant influence of natural factors on the greenhouse gas budget of some “managed” lands – notably wetlands. The IPCC, under the auspices of its Task Force Bureau on Inventories, has undertaken a re-examination of the land-based approach for LULUCF and Canada looks forward to the discussions at the upcoming meeting on this issue.

### **Implications for Reporting**

Canada believes it necessary to carefully consider the implications of the formal adoption of the Guidelines for reporting. Inventory estimates are used not only for reporting under the Convention, but also for accounting<sup>2</sup> in a Kyoto or similar future regime. Canada’s experience with the reporting formats under the Convention and the Kyoto Protocol clearly shows that this format strongly influences the ease of combining estimates into accounting entities, such as “national totals” or “removal units” in a transparent and intelligible way. The reporting format also strongly influences the comparability of estimates and accounting entities.

Canada notes that the categorization of sources and sinks in the 2006 Guidelines is inconsistent with the current reporting format and accounting procedures used by Annex I countries during the first commitment period. Canada, therefore, is of the view that it would be undesirable, if not quite difficult, to implement fully the 2006 Guidelines categorization until the 2015 inventory submission.

Canada further notes that the design of future reporting categories and the development of commensurate reporting format must be done in concert with the development of accounting rules for the future. Canada is of the view that future decisions on accounting rules should not be constrained by methodological categorization or by the format of reporting tables. This applies particularly, but not exclusively, to the new AFOLU sector in the Guidelines, which combines sectors whose accounting status differ in the first commitment period, and, in the case of LULUCF, remains uncertain beyond 2012.

Canada would view favourably a simplification of reporting requirements, and will welcome, in due course, the opportunity to improve the user-friendliness and policy relevance of the current reporting formats.

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<sup>2</sup> Accounting, Estimation and Reporting

- “*Accounting*” refers to the rules for comparing emissions and removals and Kyoto units reported in the National Inventory Report with commitments inscribed in the Kyoto Protocol.
- “*Estimation*” is the process of calculating greenhouse gas emissions and removals.
- “*Reporting*” is the process of providing estimates to the UNFCCC.

The 2006 Guidelines should not, therefore, be used by Annex 1 Parties for reporting and accounting purposes at this time. Canada considers it essential that the adoption of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories be done in a fashion that does not pre-judge future decisions on reporting and accounting. Canada is of the view that at this point the formal adoption of the 2006 Guidelines by SBSTA should be limited to the use of the updated methodological guidance contained within them.

## **SUBMISSION BY THE CZECH REPUBLIC ON BEHALF OF THE EUROPEAN COMMUNITY AND ITS MEMBER STATES**

This submission is supported by Bosnia and Herzegovina, Croatia, Montenegro, Serbia and Turkey

### **Intergovernmental Panel on Climate Change guidelines for national greenhouse gas inventories (SBSTA) Information on experience gained with the 2006 IPCC Guidelines, further considerations related to the future revision of the UNFCCC reporting guidelines for Annex I Parties, the considerations related to the 2006 IPCC Guidelines and reporting issues relating to the 2006 IPCC Guidelines**

**Prague, 4 March 2009**

The SBSTA at its 26<sup>th</sup> session requested Parties to submit information on experience gained with the 2006 IPCC Guidelines for National GHG Inventories, further considerations related to the future revision of the UNFCCC reporting guidelines on annual inventories for Annex I Parties, the considerations related to the 2006 IPCC Guidelines and reporting issues relating to the 2006 IPCC Guidelines. The EU organized a technical workshop on the implications of the implementation of the 2006 IPCC Guidelines for national GHG inventories which took place from 30-31 October 2008 in Copenhagen. The country presentations at this workshop showed a wide range of experiences with the use of 2006 IPCC guidelines by EU and Non-EU countries. These presentations are available at

[http://airclimate.eionet.europa.eu/docs/meetings/081030\\_ghg\\_inv\\_ipcc\\_gdlns\\_impl\\_ws/meeting081030.html](http://airclimate.eionet.europa.eu/docs/meetings/081030_ghg_inv_ipcc_gdlns_impl_ws/meeting081030.html).<sup>1</sup>

The presentations provide experiences related to the improvements of GHG inventories due to 2006 IPCC Guidelines as well as experiences on the quantitative impacts of the implementation of the 2006 IPCC Guidelines on GHG emissions as analysed so far. Many countries currently continue to collect additional experiences.

The main focus of this submission is the future revision of the UNFCCC reporting guidelines on annual inventories.

#### **1 General considerations**

The further work under SBSTA related to the 2006 IPCC Guidelines and the UNFCCC reporting guidelines should be guided by the following general considerations:

- The 2006 IPCC Guidelines are a development and improvement of the IPCC 1996 Guidelines and IPCC Good Practice Guidance and represent the best and most internally consistent assessment of inventory science.
- Article 5 paragraph 2 of the Kyoto Protocol states that methodologies shall be those accepted by the IPCC and agreed at COP3 while guidance under Article 7 of the Kyoto Protocol implemented an approach in which the GHG inventory submissions by Annex I Parties under the Convention are also

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<sup>1</sup> The presentations of this workshop do not necessarily reflect the view of the EC and its Member States.

their inventory submissions under the Kyoto Protocol except for the LULUCF sector and supplementary information under the Kyoto Protocol. This approach implies that the use of 2006 IPCC Guidelines under the Convention would only become mandatory for Annex I Parties' reporting for years after the first commitment period under the Kyoto Protocol.

- Consistent time-series of greenhouse gas emissions are a prerequisite for the assessment of emission reductions achieved. Therefore time-series consistency is an important principle that should guide the implementation of 2006 IPCC Guidelines under the Convention.
- In the IPCC Guidelines the use of tiered methodologies, decision trees and the determination of key categories allow the most effective use of resources available for inventory development and updating by Annex I Parties. The same principle of prioritization of resources based on the quantitative contribution of source/sink categories to total emissions, the emission trend and the uncertainties of emissions and removals should also guide the revision of UNFCCC reporting guidelines on annual inventories, for example related to the level of disaggregation of some categories.

The revision of UNFCCC reporting guidelines on annual inventories should also implement additional improvements apart from the use of 2006 IPCC Guidelines. For example, the current guidelines under the Convention do not address a national inventory system, which is only a requirement under the Kyoto Protocol, even though the reporting of essential elements of the national system (institutional arrangements, QA/QC plan, record keeping) is a basic component of the NIR. Given that the national inventory system is a key element for the preparation of national GHG inventories under both the Convention and the Protocol, it should also be specifically recognized in the Convention reporting guidelines.

Experiences from the UNFCCC review of national GHG inventories should also be considered and taken into account in the further improvement of the reporting guidelines for Annex I annual inventories. Revision of the guidelines is needed to remove substantial inconsistency and contradiction with regard to what are mandatory and non-mandatory reporting requirements and to ensure that the basic requirements under the guidelines match those that have become established through ERT recommendations in annual review reports.

## **2 Considerations related to the future revision of the UNFCCC reporting guidelines on annual inventories for Annex I Parties**

The UNFCCC reporting guidelines on annual inventories have proven to be very useful for the reporting and the review of national GHG inventories under the Convention. These guidelines need to be revised to implement the 2006 IPCC Guidelines for inventory reporting under the Convention. The general principles and approach of the UNFCCC reporting guidelines should be kept and the revision should only amend the existing guidelines in specific areas where necessary. In the view of the EU, such specific areas include inter alia the following:

### **2.1 Scope of gases**

The scope of GHG gases in national inventories should be extended related to cover additional fluorinated gases. Some additional fluorinated gases are identified in the 2006 IPCC Guidelines while the IPCC 4<sup>th</sup> Assessment Report provides GWPs for a number of other fluorinated gases not covered by the current UNFCCC guidelines. A decision to include additional fluorinated gases in the UNFCCC reporting guidelines on annual inventories should be guided by the following principles:

- Global warming potentials (GWP) are available from the IPCC 4<sup>th</sup> Assessment Report for calculating their emissions as CO<sub>2</sub>equivalents;

- Estimation methodologies are available from the IPCC (related either to specific fluorinated gases or to production/ installation/ maintenance/ disposal processes for a particular application);
- Potentially significant impact on global warming at present or in the future.

Emissions of fluorinated gases for which production and use only started in a recent past year should be reported for the years beginning from the year in which their production or use started. For these recent substances Parties should decide from which reporting year onwards they should be reported.

In the same way it should be assessed whether all individual F-gases currently included in the Annex of the UNFCCC reporting guidelines are still being produced and/or used. Some individual chemical species are not reported by any Party and may have become irrelevant in practice.

Apart from fluorinated gases, the 2006 IPCC Guidelines clarify and extend the scope of GHG inventories in relation to indirect emissions of CO<sub>2</sub> and N<sub>2</sub>O. The possible inclusion of additional indirect emissions in annual inventories in line with these changes should also be addressed under the scope of UNFCCC reporting guidelines on annual inventories.

## **2.2 Revision of Global Warming Potentials (GWPs)**

The 2006 IPCC Guidelines propose to use GWPs provided in the IPCC third assessment report. Meanwhile the IPCC 4<sup>th</sup> assessment report provided updated GWPs for all GHG. Table 1 “1995 IPCC global warming potentials (GWP) values based on the effects of greenhouse gases over a 100-year time horizon” of the UNFCCC Guidelines on annual inventories should therefore be replaced by an updated and extended table “2007 IPCC global warming potentials (GWP) values based on the effects of greenhouse gases over a 100-year time horizon” reflecting the GWPs reported by IPCC in its Fourth Assessment report. Such updating of Table 1 is already foreseen in the existing reporting guidelines in paragraph 20 saying that “Table 1 on page 15 will be amended to include any additional greenhouse gases and their 100-year GWP values, once the GWP values have been adopted by the COP.”

## **2.3 Definition of national total GHG emissions without LULUCF**

In the 2006 IPCC Guidelines, the previous sectors “agriculture” and “LULUCF” were merged into one sector “AFOLU”. The UNFCCC reporting guidelines, in particular the CRF reporting tables, define national total GHG emissions with and without LULUCF. This aggregate “national total GHG emissions without LULUCF” is used for several purposes, such as presenting information on emission trends in inventories or review reports. The merging of the two sectors to AFOLU in the 2006 IPCC Guidelines requires a reconsideration of the definition of “national total GHG emissions without LULUCF” in the revision of the UNFCCC reporting guidelines on the basis of the new source/sink categories provided in the 2006 IPCC Guidelines. Besides the definition of national total GHG emissions without LULUCF, all references to “LULUCF” and “agriculture” in the UNFCCC reporting guidelines have to be carefully assessed to decide which changes are necessary to reflect the new source categories in a correct way. The EU is of the view that it is useful to continue reporting on the two separate national totals (one total including all GHG emissions except memo items and a second total that excludes emissions and removals from LULUCF) because:

- Separate national totals provide better information on relevant emission trends;
- Separate national totals are consistent with the existing reporting practice. This established practice is widely used and accepted.

In this context, the EU notes that this submission is about reporting and does not in any way prejudice the choices to be made about accounting emissions and removals associated with LULUCF. Supplementary information may be required when the outcome of these choices is known.

#### **2.4 Harvested Wood Products (HWP)**

For a post-2012 agreement, the EU is willing to consider moving from the current default accounting method for harvested wood products which assumes instant oxidation of this pool to an approach that accounts for the storage of carbon in wood products and the subsequent emissions from these products. In the view of the EU, the methods used to estimate storage of carbon in wood products should be consistent under the Convention and under a post-2012 agreement. This principle implies some changes to the UNFCCC reporting guidelines for GHG inventories once an accounting approach for HWP is agreed. Different accounting approaches for HWP lead to different estimation methods based on different types of activity data, different equations or different needs for default parameters. The 2006 IPCC Guidelines tried to address a number of accounting approaches and in this respect do not provide single, unambiguous estimation methods for different tiers as for other source categories. Therefore the methodological guidance on the estimation of HWPs provided in the 2006 IPCC Guidelines may not yet be fully applicable for future reporting and review purposes and will need some refinement once an accounting approach for HWP is agreed.

#### **2.5 Recalculations and time-series consistency**

The considerable amount of changes in reporting categories, structure of the reporting, new source categories and revised methodologies in the 2006 IPCC Guidelines require a recalculation of the time series of GHG emissions to avoid time series inconsistencies due to the introduction of the 2006 IPCC Guidelines. Such recalculation should be addressed in the UNFCCC reporting guidelines on annual inventories. In this respect the changes in the 2006 IPCC Guidelines require further analysis whether all revisions in methodologies, methodologies for new source categories and changes in allocations to specific source categories can be recalculated backwards with available datasets and without increasing uncertainties of the trend compared to the existing reporting guidance. UNFCCC guidelines should address specific situations where recalculations are not meaningful or feasible for the entire time series.

#### **2.6 IPCC emission factor database**

The IPCC established the IPCC emission factor database (EFDB) at <http://www.ipcc-nggip.iges.or.jp/EFDB/main.php> which is a recognised library, where users can find emission factors and other parameters with background documentation or technical references that can be used for estimating greenhouse gas emissions and removals. The objective of the EFDB is securing and disseminating the most current scientific information on emission factors and assisting in increasing transparency and reliability of national inventories. Emission factors and similar parameters are likely to change in the future and default parameters presented in the 2006 IPCC Guidelines could already be outdated in specific areas when the 2006 IPCC Guidelines will become mandatory under the Convention in 2015. Therefore the EU would like to discuss a more flexible future approach with regard to guidance on emission factors and similar parameters that makes use of the IPCC EFDB for future updating and improvement of emission factors recommended as part of Tier 1 approaches. Such use would change the IPCC emission factor database from a recognised library to a tool for dissemination of updated default parameters after such updated parameters were recommended in a specific process by scientific experts and after approval by Parties. The EU would like to further discuss such flexible approach with other Parties and it could be incorporated in the revision of reporting guidelines on annual inventories.

#### **2.7 Other considerations**

The changes introduced in the 2006 IPCC Guidelines require the revision of the guidance for the structure and content of the National Inventory Report (NIR), e.g. the inclusion of a new category on CO<sub>2</sub> transport and storage may also need to be addressed in this part of the UNFCCC guidance. The UNFCCC reporting guidelines on annual inventories require the reporting of potential emissions of HFCs, PFCs and SF<sub>6</sub> from all Annex I Parties for those source categories where the concept of potential

emissions applies. The estimation of potential F-gas emissions is dropped in the 2006 IPCC Guidelines and replaced by new Tier 1 approaches resulting in actual emissions. Therefore the requirement to report potential F-gas emissions should be removed from UNFCCC reporting guidelines on annual inventories. Reporting of emissions in source categories for which estimation methods in the 2006 IPCC Guidelines have been moved to appendices to the guidelines due to the limited availability of scientific information, should not be mandatory in UNFCCC guidelines on annual inventories.



## **2.8 Revision of the common reporting format**

The implementation of 2006 IPCC Guidelines will require changes in the CRF reporting tables. The EU believes that this part of the revision of the UNFCCC reporting guidelines will be the most time-consuming part of the future work. As highlighted above, in the view of the EU the revision of the reporting format should take into account the importance of time-series consistency, data availability as well as resource requirements for the implementation of changes in reporting categories. Issues that need to be discussed and addressed include:

### *General*

Each submission currently adds one year to the reported time series and recalculates all previous years back to 1990 (or earlier for few Parties). If the existing reporting practice is kept, the CRF tables will cover 25 years in 2015 and 30 years in 2020. This large amount of years will consume resources of Parties and the UNFCCC secretariat to correctly address and assess each single past year independent of the fact whether the information for all individual years is used for any purpose. The revision of the CRF should discuss potential ways to rationalize the reporting related to historic years without jeopardizing the principle of time series consistency (e.g. whether for the years before 2000, reporting in 5-year intervals would be sufficient).

### *Energy*

- The reporting of CO<sub>2</sub> transport and storage in the energy sector. New background tables need to be developed for this purpose and there may be several options for reporting, e.g. CO<sub>2</sub> transport and storage could be reported in a separate background table or transport of CO<sub>2</sub> could also be part of fugitive emissions. It should also be discussed how transparent reporting on captured amounts of CO<sub>2</sub> can be achieved.
- The reporting of CH<sub>4</sub> from abandoned coal mines should be included under fugitive emissions from energy.
- In 2006 IPCC Guidelines fugitive emissions from venting and flaring are separate subcategories under oil and natural gas subcategories and there is no longer an option for reporting of combined flaring from oil and gas. This option is currently used by a considerable number of countries and it should be further discussed whether sufficient data is available to implement this separation. A split to subcategories which mainly increases the amount of reporting of “IE” (included elsewhere) may not improve the reporting system.
- In the 2006 IPCC Guidelines emissions from non-energy fuel uses were moved from energy to industrial processes and product use. This change has to be further considered in the revision of the UNFCCC reporting guidelines in relation to time-series consistency and the inventory review.
- The EU believes that the level of disaggregation of emissions from Manufacturing industries and construction proposed in 2006 IPCC Guidelines needs further consideration to account for differences in data availability among Parties, differences in category definitions between IPCC guidelines and those used for domestic emission trading schemes or for economic analysis.
- The source categories for civil aviation and navigation have been redefined and comprise international and domestic emissions in 2006 IPCC guidelines and military emissions. In addition “remaining mobile emissions” have been redistributed to the different transport modes. These changes need further consideration in relation to the reporting of transport emissions. It should also be further

discussed whether it is possible from the point of view of data availability to further split emissions from military or multilateral operations into additional subcategories.

#### *Industrial processes*

- The merging of sectors “industrial processes” and “solvents and other product use” to the sector “Industrial processes and Product use” should be reflected in the CRF tables.
- It has to be discussed how new source categories under industrial processes and product use will be addressed in the reporting tables.
- Some source categories under industrial processes were reorganized which should also be considered in relation to time-series consistency.

#### *AFOLU*

- The new structure of categories and new source categories in agriculture and for land based emissions should be considered and addressed.

### **3 Future process**

The EU would like to start discussing the revision of UNFCCC reporting guidelines on annual inventories as soon as possible at a detailed level because the revision of the reporting guidelines was a time-consuming process in the past and will require considerable negotiation time in the future. It is important that the revision, in particular the revision of CRF tables, is completed in time prior to the start of the second commitment period to allow sufficient time for the development and testing of revised CRF reporter software.

In 2009 specific areas should be identified that need to be addressed in the revision of UNFCCC reporting guidelines on annual inventories and in 2010 Parties should start discussing specific proposals for the revision of the UNFCCC reporting guidelines based on new submissions from Parties, taking into account the decisions under AWG-KP relevant for reporting issues.

In the view of the EU an intersessional workshop in addition to the meetings of SBSTA will be necessary in 2010 for the discussion of the revision of the UNFCCC guidelines, in particular for the detailed revision of CRF reporting tables.

**SBSTA30**

**Submission with Respect to the 2006 IPCC Guidelines for  
National Greenhouse Gas Inventories**

(February 2009)

Japan welcomes the opportunity to submit the following comments on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (herein, the 2006 IPCC Guidelines).

**1. General Issues**

**1.1 Basic Philosophy on Handling of the 2006 IPCC Guidelines**

Japan's basic philosophy on the application for and handling of the 2006 IPCC Guidelines is as follows.

- Handling of the 2006 IPCC Guidelines during the first commitment period
  - Japan would like to reiterate following points:
    - Until the estimation and reporting of the GHG emissions and removals of the year 2012 (the final year of the first commitment period), the GHG inventories of each country shall be prepared based on the Revised 1996 IPCC Guidelines, the Good Practice and Uncertainty Management in National Greenhouse Gas Inventories (2000) (herein, GPG2000) and the IPCC Good Practice Guidelines for Land Use, Land Use Change and Forestry (herein, GPG-LILUCF).
    - The use of the 2006 IPCC Guidelines is not mandatory.
- General assessment on the 2006 IPCC Guidelines
  - Reflection of the new information in the 2006 IPCC Guidelines in GHG inventory preparation significantly contributes to the enhancement of accuracy of emissions and removals for each country, and Japan feels that application of the 2006 IPCC Guidelines to the extent possible is useful for both Annex I Parties and non-Annex I Parties.
- Relating to the consideration of the next commitment period
  - Results of the discussions on the post-2012 framework for Annex I Parties, currently taking place at AWG-KP, will have significant impact on the handling of the 2006 IPCC Guidelines and on the necessary revisions to the UNFCCC reporting guidelines on annual inventories. For example, caution is needed with respect to the rules for the handling of LULUCF, the scope of GHG inventories, global warming potential (GWP), treatment of international bunker fuels, and setting of the base year. Depending upon the methodology and the rules for the future framework, guidance not covered under the 2006 IPCC Guidelines may become necessary. Thus, with respect to areas where further work is needed, it will be necessary for the Conference of the Parties (COP) and COP/MOP to consider making requests to the IPCC to revise the 2006 IPCC Guidelines.
- Consideration of a transition period for using the 2006 IPCC Guidelines
  - The year 2015, the year to report the 2013 GHG emissions and removals, may be a strong candidate for the start date to apply the 2006 IPCC Guidelines, but the period from 2014 to 2015 will coincide with the timing for Annex I Parties to submit a report of the final emissions and removals for the first commitment period and inventory review of compliance with the Kyoto Protocol reduction targets. Thus, it will be a period during which the task of the GHG emissions and removals will be very heavy. As a result, there will be the possibility that there will be significant difficulties in all countries making a smooth transition to a new inventory to apply the

2006 IPCC Guidelines in 2015, and recalculations will frequently be made until the completion of transition to the calculation and reporting system in compliance with the new guidelines. It is also possible that emissions and removals will be recalculated almost every year<sup>1</sup>. Taking such a situation into account, in applying the 2006 IPCC Guidelines, a transition period over several years may be necessary.

## **1.2 Implications Regarding the Transition to 2006 IPCC Guidelines**

In applying the 2006 IPCC Guidelines, Japan feels that various implications associated with the transition exists. For example, with respect to the matters cited below, specific methods of dealing with the issues should be examined.

- Treatment of emissions and removals to be reported during the transition period
  - As mentioned previously, Japan feels that several years will be needed as a transition period in applying the 2006 IPCC Guidelines. Moreover, considering the precision of the inventories that will be prepared during the transition period, the rules of the future framework should consider that such figures in relation to the next commitment period to comply with the GHG inventories will not be finalized until the tasks required for the application of 2006 IPCC Guidelines and new inventory reporting by the countries reach some degree of completion.
- Need for identification and discussions of individual, specific issues
  - The 2006 Guidelines are an evolution from the existing guidelines and generally follow the philosophy adopted in the existing guidelines on methodology and reporting rules. However, for some specific categories, changes have been made to improve estimation methods. Treatment of military aircraft and vessels in respect to international bunker fuels and treatment of carbon dioxide emitted during urea manufacturing are just some of the examples. In the emissions and removals reporting under the UNFCCC and the Kyoto Protocol, it is conceivable that individual, specific issues that have potential implications will come to light in the process of actually applying the 2006 IPCC Guidelines. A period of time where specific issues are identified and discussed, should be set up before parties are to officially use the 2006 IPCC Guidelines.
- Role of the previous guidelines after the 2006 IPCC Guidelines are adopted
  - There is a need to have discussions with respect to the role of the Revised 1996 IPCC Guidelines, GPG2000, and the GPG-LULUCF after commencing application of the 2006 IPCC Guidelines.
- Consistency of the Inventory Time Series
  - In the new categories of the 2006 IPCC Guidelines, it is possible that there will be some difficulties in obtaining data from the past. In such a case, it is necessary to have discussions about consistency of the time series, as to whether there will be the necessity to apply the 2006 IPCC Guidelines to all years from 1990 to the most recent year.
- Scope of the Emission Sources
  - With the consolidation of agriculture and LULUCF sectors and addition of new emission sources, the scope of total emissions including LULUCF and total emissions excluding LULUCF will both change. It will be necessary to carefully consider the definition of “total emissions excluding LULUCF” under the 2006 IPCC Guidelines. This will be discussed in detail in the section covering AFOLU in this submission.
- Completeness
  - As new emission sources are added in the 2006 IPCC Guidelines, there is a serious concern that

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<sup>1</sup> Many recalculations are being performed every year in Japan since we began using the GPG-LULUCF.

the burdens relating to the completeness will be even greater than now. Consequently, it may be, for example, necessary to examine the criteria for “emissions that need not be included in the inventory (i.e. not a problem even if emissions reported as “NE”=Not Estimated)” and alleviate the burdens. Relating to this, it is necessary to consider the possibility of adding a new notation key such as “CI (=considered insignificant).”

➤ CRF Table

- It should be noted that the worksheet contained in the Annex to the 2006 IPCC Guidelines is an excellent foundation and useful in future calculations, but as is, it will not represent a CRF reporting table and it will be decided upon future consideration.
- In order to make the transition process to the 2006 IPCC Guidelines smoothly, it will be necessary to hold discussions regarding the timing of development of CRF Reporting Software that takes into account the contents of the 2006 IPCC Guidelines.

➤ Treatment of Indirect Emissions of CO<sub>2</sub>

- Although the 2006 IPCC Guidelines, in principle, require the counting of CO<sub>2</sub> emissions which are emitted into the atmosphere in the form of direct emissions, they also make reference to the method of calculating indirect emissions (CO<sub>2</sub> arising from the oxidation in the atmosphere of methane (CH<sub>4</sub>), carbon monoxide (CO), and non-methane volatile organic compounds (NMVOCs) that had been anthropogenically emitted) (Section 7.2.1.5, Chapter 7 of Volume 1). That is to say the 2006 IPCC Guidelines can be used in either case; excluding indirect CO<sub>2</sub> emissions or including them. A discussion relating to the treatment of indirect CO<sub>2</sub> emissions in the inventories to be reported under UNFCCC and the Kyoto Protocol will be necessary.

➤ Indirect N<sub>2</sub>O Emissions

- Some ammonia (NH<sub>3</sub>) and nitrogen oxide (NO<sub>x</sub>) that have been anthropogenically emitted subsequently after falling onto soil and water surfaces are released into the atmosphere as N<sub>2</sub>O. This is referred to as indirect nitrous oxide (N<sub>2</sub>O) emissions. Under the 1996 IPCC Guidelines and GPG2000, indirect emissions of N<sub>2</sub>O had been focused on among the agricultural sector, but in the 2006 IPCC Guidelines they refer to N<sub>2</sub>O indirect emissions in other sectors as well (Section 7.3.2, Chapter 7 of Volume 1)<sup>2</sup>. According to this, when counting indirect N<sub>2</sub>O emissions in sectors other than agriculture, it will be necessary to note that the inventories of NO<sub>x</sub> and NH<sub>3</sub>, which are the basis for the calculations, should be included in the review.

## **2. Sector Specific Issues**

### **2.1 Matters Relating to Energy Recovery**

➤ Counting of Emissions in the Energy Sector from Wastes Associated with Energy Use and Recovery

- The Revised 1996 IPCC Guidelines, GPG2000 and 2006 IPCC Guidelines call for the counting of greenhouse gas emissions from wastes that are used as energy and waste combustion associated with energy recovery in the energy sector.
- According to the 2006 IPCC Guidelines, the rationale behind reporting the emissions from waste that had been used as energy and waste combustion associated with energy recovery in the energy sector is quoted as being “to prevent double counting and errors in the counting sector”, but the Japanese have experienced that even if the said emissions were not reported in the energy sector, it is possible to avoid “double counting and errors in the counting sector”. With respect to whether

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<sup>2</sup> "It is good practice to estimate and report N<sub>2</sub>O emissions from atmospheric deposition of NO<sub>x</sub> and NH<sub>3</sub> where a country already has emissions • removals of these gasses. For the purposes of calculation, it is assumed that N<sub>2</sub>O is emitted in the same year that the original NO<sub>x</sub> and NH<sub>3</sub> were emitted."

the emissions from waste associated with energy use and recovery should be counted in the energy sector or in the waste sector, it may be necessary to continue to make further consideration carefully at IPCC and COP. For example, for those countries that can adequately take into account double counting or reporting errors, a rule may be considered allowing such countries to count either the emissions in the energy sector or the waste sector.

## **2.2 Matters Relating to Waste Sector**

- Regarding the Experience of Using the 2006 IPCC Guidelines
  - In Japan, emissions in the waste sector (6A1, 6A3, 6B2) are being estimated applying the 2006 IPCC Guidelines. The calculations of the waste sector applying the 2006 IPCC Guidelines, compared with the calculations based on the Revised 1996 IPCC Guidelines and GPG2000, are improved precision, transparency and completeness. The “IPCC Waste Model” that is attached to the 2006 IPCC Guidelines is considered to be a useful and flexible tool in the calculation of FOD.

## **2.3 Matters Relating to AFOLU Sector**

### **2.3.1 Relation with the discussion of future Framework**

- Additional Guideline for the Methodology in Relation to the Treatment of LULUCF Rules for the further commitments period
  - There are no descriptions corresponding to Chapter 4 of the current GPG-LULUCF in the 2006 IPCC Guidelines. When the rules relating to the treatment of LULUCF in the next commitment period beyond 2012 are finalized, a formulation of guidelines in line with the LULUCF rules for the next commitment period will be needed.
- Separation Between Emissions Scope of the Agricultural Sector and Scope of Application of the LULUCF Sector
  - In the 2006 IPCC Guidelines, the previous agricultural sector and LULUCF sector have been consolidated to form the AFOLU sector in order to improve consistency and completeness. However, in the current discussions for the future framework, LULUCF continues to be treated as an independent sector.
  - If similar to the case of the first commitment period, only the agricultural sector is included in the Kyoto Protocol Annex A and, LULUCF continues to be treated separately for the purposes of use of the reduction target, it will become necessary to define which categories are to be emissions to be included in the agricultural sector and which are to be included in the LULUCF sector. In particular, a clear sorting of the thinking behind an allocation of non-CO<sub>2</sub> emissions associated with biomass burning including fires, and CO<sub>2</sub> emissions associated with liming and urea fertilization, and N<sub>2</sub>O emissions from soils is necessary. For example, a process such as holding an experts meeting, as needed, to undertake this examination should be considered.
  - If Article 3.4 of the UNFCCC, LULUCF activities remain optional accounting, with respect to categories that are currently mandated to estimate as emission sources in the agricultural sector, some caution will need to be taken in reallocating these emission source to a category in which optional accounting under LULUCF sector.

### **2.3.2 Revision of AFOLU Sector GHG Inventories Reporting Guidelines**

- Note in Formulating a CRF Reporting Table
  - Related to the comments made in the general section, the AFOLU sector worksheet contained in the Annex to the 2006 IPCC Guidelines, consists only of the sheet that deals with the gain – loss method, but a CRF reporting table that is also applicable for the stock change method, of which

usage is authorized under the IPCC Guidelines, needs to be formulated.

- Furthermore, in the calculations for the AFOLU sector, there are possible cases where amount of emissions happen to coincide with amount of removals or where stock volumes at two points in time become the same. In such cases, the results of estimation of net emissions and removals would become “0”. These cases in any way do not indicate that emissions and removals do not exist or that estimation is not being performed, so the significance of the figure is distinct from the figure “0” classified in NA, NO, NE in the emission sources sector. This distinction needs to be taken into account in the CRF reporting table and reporting software.

### **2.3.3 Points of Discussion Relating to IPCC Guidelines in Relation to AFOLU Sector**

- Issues of Managed Land / Unmanaged Land
  - Under the current IPCC methodology, the concept of managed land and unmanaged land has been used as a substitute for anthropogenic emissions/removals and calls for calculation of all emissions and removals occurs in managed land. Unless practical methodology which distinguishes each cause of anthropogenic emissions/removals is developed, the concept of managed land and unmanaged land should continue to be used. However, the definition of “unmanaged land” should be made more explicit in order to cover all of anthropogenic emissions rightly.
- The Issue of Data Inadequacy
  - In using the AFOLU sector in the 2006 IPCC Guidelines, a great deal of data is needed. For countries that do not possess their own data, default values will need to be used, but the default values contained in the 2006 IPCC Guidelines are not always enough to represent every country’s differences such as natural condition. In use for calculations, it is necessary that usable data such as the emission factor database (EFDB) prepared by IPCC shall be accumulated and that careful examination of default values and database application guidelines are also taken into consideration.
- Additional Guidelines for Satellite Use
  - The methodology of guidelines for satellite use was presented in the 2006 IPCC Guidelines, but additional guidelines for this may be needed. Taking into account the recent advances in knowledge and technology, it would be appropriate to undertake tasks to create a technical paper under UNFCCC or create additional guidelines under IPCC.
- Development of Calculation Methods Relating to Wetlands
  - With respect to wetlands, it is known that they are or potentially can be a major source of emissions, but the methodologies relating to the calculation of emissions and removals in wetlands provided by the current guidelines are limited, difficulties in achieving completeness are conceivable. Furthermore, in many cases, wetlands other than flooded lands are potentially included under other various land use categories. Under the current circumstances they are not clearly differentiated from other lands. With respect to methodologies relating to wetlands management, degradation, restoration further work is needed and desirable.
- Improvement in Calculations Relating to N<sub>2</sub>O Emissions from Soil
  - With respect to N<sub>2</sub>O emissions from soil, several issues surrounding the calculation methods were raised in the IPCC AFOLU sector meeting held in May 2008. It is desirable to reflect the solutions to these issues to the extent possible in preparing the inventories.

### **2.3.4 Issues Specific to HWP**

- Differences in Results of HWP Calculation Tiers
  - Japan made an examination of calculation methods based on each approach to HWP by using the

2006 IPCC Guidelines. As issues faced in the process, significant differences were observed that would overturn the results of emissions / removals depending upon the use of Tier 1 or higher Tier in the calculation.

- This implies that depending upon which tier is used, calculation results by countries can potentially diverge significantly and, from the point of view of comparability, we feel that this could pose significant issues.
- Relationship with the Discussions on the Future Framework
  - What type of calculation method should be applied to HWP should be considered in conjunction with the discussions on the broad context of LULUCF rules in the future commitment period that is currently processing. Furthermore, the possible HWP accounting rules applying to the next commitment period will may be required to be included in additional guidance corresponding to Chapter 4 of the current GPG-LULUCF.

### **3. Process in the Future**

- It will be necessary to initiate the application of the 2006 IPCC Guidelines at an early stage in order to develop software, improve and revise the review process, and identify and solve individual specific issues in a timely manner for the purpose of reporting. At the least, a conclusion to initiate piloting the application of the 2006 IPCC Guidelines should be adopted at COP15.
- After the rules and methodologies for the next commitment period have been finalized at AWG-KP, it is necessary to consider the need for additional guidance based on those results, and specific items for changes in the reporting guidelines at the subsequent SBSTA.



**New Zealand submission to the SBSTA on  
Experience gained with the 2006 IPCC Guidelines, further considerations  
related to the future revision of the UNFCCC reporting guidelines for Annex  
I Parties, the considerations related to the 2006 IPCC Guidelines and  
reporting issues relating to the 2006 IPCC Guidelines**

February 2009

New Zealand welcomes the opportunity to provide a submission on experience gained with the 2006 IPCC Guidelines and suggestions for improvements (FCCC/SBSTA/2007/4 paragraph 56 refers).

Measurement and reporting of greenhouse gas emissions, and the subsequent inventory review process, fundamentally underpin international action to reduce emissions, through assessing Parties' implementation of the Convention and its Kyoto Protocol, and understanding global emission trends.

Measurement, reporting and verification can provide an audit of global mitigation effort, better inform emissions projections, and provide an estimate of progress in relation to targets and goals.

Frequent and up to date greenhouse gas inventories and baseline projections - at least covering the bulk of global emissions - will be essential now, up to and beyond 2012.

New Zealand supports the use of the most up to date science for greenhouse gas inventories and supports use of the IPCC 2006 Guidelines for inventory compilation. New Zealand is of the view that any adoption of the IPCC 2006 Guidelines would apply to reporting under both the Convention and the Kyoto Protocol. New Zealand also considers the Tier 1 approaches presented in the IPCC 2006 Guidelines provide the best starting point for compiling non-Annex I Party inventories.

In compiling its most recent inventory New Zealand has used the IPCC 2006 Guidelines as a reference for methodologies in the waste sector and this has, in our view, improved the accuracy our reporting in this sector. However, the technical issues highlighted below need to be considered and discussed in order that Parties can agree on an approach for the adoption of the IPCC 2006 Guidelines.

The 2006 IPCC Guidelines contain new gases, fuels and activities for most sectors requiring additional data collection efforts. Careful consideration will need to be given to how historical data is calculated to obtain a consistent time series.

The need to report more categories and in some cases, at a more disaggregated level, also has implications for the resourcing of national and/or regional level statistics. Official statistical offices need time to plan for the collection of these statistics if estimates from these sources are to be reported accurately.

There are a number of methodological issues that will become apparent as Parties have further experience in using the guidelines. An example is in the AFOLU sector: In chapter 11 (direct and indirect N<sub>2</sub>O emissions) the IPCC 2006 guidelines include an additional term, F<sub>SOM</sub> (annual amount of N in mineral soils that is mineralised, in association with loss of soil C from soil organic matter as a result of changes to land use or management). The guidelines need to clarify for what type of land use or management practice are they referring; permanent, temporary or both? In New

Zealand it is common for land to be in pasture, forage cropping and back to pasture within a two year period.

These issues will need to be worked through in workshops to ensure consistent understanding and interpretation of the guidelines across Parties and across the expert review teams reviewing inventory submissions.

Currently inventory totals are calculated as total national greenhouse gas emissions with and without LULUCF. The combining of the agriculture and LULUCF sectors into one sector, AFOLU, will mean it is no longer easy to distinguish national greenhouse gas totals with and without LULUCF. The follow on effects to the review process and the sectors/sources listed in Annex A of the Kyoto Protocol will also need to be considered.

Parties are currently negotiating commitments for the second commitment period under the Kyoto Protocol. New Zealand believes that it is necessary to agree greenhouse gas reporting and accounting rules before targets for a second commitment period can be agreed. Therefore, by implication, the status of the IPCC 2006 Guidelines with respect to the reporting requirements in the second commitment period will need to be decided before targets are agreed.

We look forward to participating in discussions on the experience and future use of the IPCC 2006 Guidelines.

## **Saudi Arabia Submission on IPCC Guidelines for National Greenhouse Gas Inventories**

*Referring to FCCC/SBSTA/2007/4, Parties were invited to submit to the secretariat, by 15 February 2009, information on their experience, further considerations related to the future revision of the UNFCCC reporting guidelines for Annex I Parties and the considerations related to the 2006 IPCC Guidelines for compilation into a miscellaneous document.*

Saudi Arabia welcomes the invitation and is pleased to make the following comments on the 2006 IPCC Guidelines and the future revision of the UNFCCC reporting guidelines for national greenhouse gas inventories:

- The 2006 IPCC Guidelines are certainly a step forward compared to the currently used 1996 IPCC revised Guidelines.
  - In general the 2006 Guidelines are to be credited for comprehensiveness and clarity in providing an elaborated framework for the estimation and reporting of GHG emissions,
  - In addition to enhanced transparency, the 2006 Guidelines provide useful new concepts, such as the concept of key categories and new methodologies, such as the one for the estimation of emissions from Carbon Capture and Storage (CCS),
  - In contrast, this elaborated framework necessarily creates additional demands on data collection and reporting. The concern would then be whether the new Guidelines provide sufficient number of simplified methodologies and short-cuts to deal with data problems, specially thinking of future involvement of developing countries.
  
- As these Guidelines, if adopted, can only be used to judge compliance in future commitment periods, there is a time to experiment with them so as to discover their merits as well as limitations. Saudi Arabia suggests that SBSTA invites Annex I Parties to experiment using both the 1996 IPCC revised Guidelines and the 2006 IPCC Guidelines and to report their GHG inventories along with their experience and results on:
  - Practicality and level of difficulties involved in collecting data and following methodologies,
  - Scope for incompleteness and double counting of GHG emissions,
  - How large the differences in results and what are their implications for mitigation options, compliance as well as for ways to reconcile these differences,
  - Implications for time-series consistency, consistency between the Convention and the Protocol, and consistency across commitment periods.

- Saudi Arabia underscores the importance of the GWP for assessment of commitments and compliance for future commitment periods and would like to see a rigorous answer and a scientific settlement to this issue very soon.
- Saudi Arabia is concerned that cross-cutting issues, such as the carbon cycle of bio-fuels and the allocation of cross-boundary emissions from international transportation are not sufficiently dealt with in the Guidelines.
- Saudi Arabia asks that future revisions of the UNFCCC reporting system for Annex I Parties better address the assessment of uncertainties; particularly in relation to complex areas such as land use change and precursor emissions.
- Saudi Arabia calls for timely consideration of training and capacity building in developing countries to prepare them for the adoption of the revised reporting systems in their future national communications reports.

**Information of the Republic of Uzbekistan on the opinion of the use of the  
Manual of IPCC 2006  
on the green-house gases inventory**

At the moment the experience of the Republic of Uzbekistan in the use of the Manual of IPCC 2006 is negligible. In the process of preparation of the green-house gases inventory in the framework of the Second National Report we carried out testing calculations of CO<sub>2</sub> absorptions by this Manual in the Category «Changes of the wood biomass in the forests and other reservoirs». The obtained results reveal that the Manual of IPCC for 2006 makes it possible to carry out more comprehensive and, consequently – more accurate calculation of absorptions in this category.

Republic of Uzbekistan plans to use the Manual of IPCC for 2006 in the preparation of the cadastre of green-house gases in the framework of the forthcoming national reports.

For facilitating and efficient use of the Guiding Principles of IPCC 2006 there is a necessity for the strengthening of the capacity of national experts of Uzbekistan involved to the national cadastre of the green-house gases. In this regard IPCC jointly with UNFCCC intensify their efforts on capacity building in this field and organize the speeded-up training on the use of Guiding principles of IPCC of 2006 for the Non-Annex I countries.

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