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Report for the Stage 3 in-depth review of emission inventories submitted under the UNECE LRTAP Convention and EU National Emissions Ceilings Directive for:

The Czech Republic

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INTRODUCTION

1. The mandate and the overall objectives for the emission inventory review process under the LRTAP Convention are provided by the UNECE document '*Methods and Procedures for the Technical Review of Air Pollutant Emission Inventories reported under the Convention and its Protocols'* [(1)] – hereafter referred to as the 'Methods and Procedures' document.

2. This annual review has focussed on SO_2, NOx, NMVOC, NH_3, plus PM_{10} & $PM_{2.5}$ for the time series years 1990 – 2009, reflecting current priorities of the EMEP Steering Body and the Task Force on Emission Inventories and Projections (TFEIP). HMs and POPs have been reviewed to the extent possible.

3. This report covers the stage 3 centralised reviews of the UNECE LRTAP Convention and EU NEC Directive inventories of the Czech Republic coordinated by the EMEP emission centre CEIP acting as the review secretariat. The review took place from 27th June to 1st July 2011 in Copenhagen, Denmark, and was hosted by the European Environment Agency (EEA). The following team of nominated experts from the roster of experts performed the review: Generalist – Anne Wagner (UK), Energy – Sophie Hoehn (CH) and Giorgos Mellios (GR), Industry – Sebastian Plickert (DE), Solvents – Ioannis Sempos (GR), Agriculture + Nature – Romain Joya (FR), Waste – Intars Cakaras (LIT).

4. Kevin Hausmann (DE) was the lead reviewer. The review was coordinated by Katarina Marečková (EMEP Centre on Emission Inventories and Projections - CEIP).

[1] Methods and Procedures for the Technical Review of Air Pollutant Emission Inventories reported under the Convention and its Protocols. Note by the Task Force on Emission Inventories and Projections. ECE/EB.AIR/GE.1/2007/16 http://www.unece.org/env/documents/2007/eb/ge1/ece.eb.air.ge.1.2007.16.e.pdf

PART A: KEY REVIEW FINDINGS

5. The Czech Republic inventory covers most pollutants and partly the time series required under the UNECE guidelines. The Czech Republic provided active support to the ERT during the 2011 centralised stage 3 review, via immediate response to any requests. Based on the additional information provided by the Party, the ERT was able to get an overview of the current national inventory system in the Czech Republic.

INVENTORY SUBMISSION

6. The inventory is partly in line with the EMEP EEA Inventory Guidebook and the UNECE Reporting Guidelines. In its 2011 submission, the Czech Republic provided the national inventory in NFR09 for the year 2009 only, due to major restructuring of their inventory compilation system. Both emissions and activity data are reported for 2009 for most sectors and all pollutants. The Party also submitted a short supporting Word document covering very broadly the inventory compilation processes in place in the Czech Republic.

7. The ERT acknowledges that the Czech Republic reports emission estimates for projections for the 'With measures' scenario for 2010 only.

KEY CATEGORIES

8. The Czech Republic lists emission sources for the main pollutants (SO_2, NOx, CO, NMVOC, NH_3, PM_{10}, $PM_{2.5}$ and TSP) with their associated percentage contribution to the total emissions. A Key Category Analysis (KCA), consistent with the EMEP/EEA Guidebook, should include all emission sources that contribute an accumulated percentage of 80% of the total emissions by pollutant. The ERT encourages the Czech Republic to list all sources that contribute to an accumulated 80% of the total emissions for each pollutant. The ERT points out that a Tier 2 or 3 methodology should be applied to all sources identified as key categories which should hence be applied to all sources listed in chapter 2.3.

9. The ERT encourages the Czech Republic to additionally present the key sources by trend assessment as well as by percentage contribution to total emissions. To clarify this issue, the ERT recommends the Czech Republic to add the trend for key sources over the complete time period in chapter 2.3,.

QUALITY

Transparency

10. The supporting Word document does not list sufficient information on assumptions; activity data time series, data sources and references, emission drivers and tiers of methods used. Adding this information would improve the transparency of the inventory compilation processes used in the Czech Republic.

11. The supporting Word document does not contain a trend analysis of either activity data or total emissions for the reported time series. The ERT encourages the Czech Republic to show emissions and activity trends over the complete time series.

12. The ERT encourages the Czech Republic to provide information on the use of notations keys in the sheet 'Additional Info' in the reporting template.

13. The quality control and quality assurance (QA/QC) procedures carried out by Czech Republic are not documented in the IIR. The ERT encourages the Czech Republic to update the IIR with the latest QA/QC procedures.

14. Information on recalculations and improvements is not included in the supporting Word document. The ERT encourages the Czech Republic to list planned and performed improvements and recalculations by sector, year and pollutant in the IIR, as well as highlighting the drivers and prioritization of improvements.

15. The supporting Word document mentions that the Czech Republic performs an uncertainty analysis. The ERT encourages the Czech Republic to provide a more detailed description of the uncertainty analysis performed by main NFR sector and pollutant and to report quantitative uncertainty estimates in its IIR in the future.

Completeness

16. In its 2011 LRTAP submission the Czech Republic reports emissions and activity data for the current year (2009) only.

17. The ERT notes that the Czech Republic reports emission estimates for projections for the ‘With measures‘ scenario for 2010 only. The ERT encourages the Party to submit projected emissions for the ‘With measures‘ scenario and for the ‘With additional measures‘ scenario for 2020 onwards together with the associated social economic data for 2010 and 2020 to 2050, if possible.

18. The Czech Republic does not report PM_{10}, $PM_{2.5}$ and TSP emissions from national and international aviation – LTO and 1 A 3 b iv. Road transport: Mopeds & motorcycles. However, emissions are provided for NO_x and emission factors for the missing pollutants are available in the EMEP EEA Guidebook. The ERT encourages the Party to report emissions for this source in the future.

19. The Czech Republic does not report any emissions for 1 A 4 a ii Commercial / institutional: Mobile either. The ERT encourages the Party to report emissions from this source in the future.

20. In addition, the Czech Republic does not report any emissions for inland waterways. The ERT encourages the Party to report emissions for this source in the future. During the stage 3 review the Party stated that the reason for not providing any emissions is the lack of activity data. The notation key “NO” will be replaced by “NE”.

21. The supporting Word document does not list sources that are currently not estimated. The ERT encourages Czech Republic to add more information as to why these sources are currently not reported (e.g. lack of activity data, source does not exist in Czech Republic) and whether there are plans to report them in the future.

Consistency, including recalculations and time series

22. The supporting Word document does not provide explanations for recalculations in the latest CLRTAP submission. The ERT encourages the Czech

Republic to provide detailed and complete information on recalculations in the 2012 IIR.

Comparability

23. The ERT notes that the inventory of Czech Republic is comparable with those of other reporting parties. The allocation of source categories follows that of the EMEP/UNECE reporting guidelines.

24. The ERT encourages the Czech Republic to provide further information on the methodologies used, as well as the activity data and emission factors used to enable a comparison of the Czech Republic's emissions with other countries.

CLRTAP/NECD comparability

25. The estimates provided under CLRTAP and NECD are not consistent. The national totals for CLRTAP and NECD are inconsistent for the years 2000-2009, especially between 2000 and 2005 there are significant differences. The same is true for emissions reported under NECD and UNFCCC. The Czech Republic mentions that these differences are due to distinctions in the inventory processing of NECD and CLRTAP data. This will, however, be resolved as part of the resubmission covering emissions from 1990 to 2009.

Accuracy and uncertainties

26. The Czech Republic performs an uncertainly analysis. The ERT encourages the Czech Republic to provide quantitative uncertainty estimates of National Totals, especially of key sources in their 2012 submission.

27. The ERT further encourages the Czech Republic to provide information on activity data, as well as the emission factors and methodologies used to enable the ERT to verify the emissions provided.

28. The Czech Republic provides 0 emission estimates in their submission. The ERT discourages the use of '0' within the reporting template and recommends that the Czech Republic reports actual estimates rather than rounded values or uses notations keys were appropriate.

Verification and quality assurance/quality control approaches

29. The supporting Word document partly covers the institutional arrangements, the inventory preparation process and the uncertainly analysis. No information is provided as to whether the Czech Republic is implementing a quality assurance/quality control (QA/QC) plan in accordance with the EMEP/CORINAIR Guidebook. The ERT encourages the Czech Republic to elaborate further on the roles and responsibilities for inventory compilation and improvement, data sources and QA/QC.

FOLLOW-UP TO PREVIOUS REVIEWS

30. The current stage 3 centralised review has used outputs from the stage 1 and stage 2 review processes. The ERT invites the Czech Republic to also refer to these previous reviews when examining this review report, and when updating its improvement plans.

AREAS FOR IMPROVEMENTS IDENTIFIED BY THE CZECH REPUBLIC

31. The Czech Republic does not list any improvements in the supporting document as part of the 2011 submission. During the stage 3 review the Czech Republic stated that improvements and QA/QC processes will be covered in a new database and will be provided together with the resubmission of 1990 to 2009 emissions.

32. During the centralised review and exchanges with the ERT, some improvements were identified by the Czech Republic:

(a) Revise the use of notation keys within the submission and avoid using '0'.

(b) Provide precise descriptions of improvements, verification and QA/QC processes in the 2012 IIR.

33. The ERT recognises the level of effort undertaken by the Czech Republic in providing an inventory to undertake a stage 3 review. Any questions issued by the ERT to the Party were addressed promptly and descriptive responses were provided.

PART B: RECOMMENDATIONS FOR IMPROVEMENTS TO THE PARTY

CROSS-CUTTING IMPROVEMENTS IDENTIFIED BY THE ERT

34. The ERT identifies the following cross-cutting issues for improvement:

35. The ERT recommends that the Czech Republic provides the full time series in line with the defined time period under CLRTAP.

36. The ERT recommends that the Czech Republic provides a complete IIR with detailed information on assumptions, activity data time series, data sources, emission drivers and tiers of methods used, as well as QA/QC procedures and quantitative uncertainty estimates for each sector.

37. The ERT recommends that the Czech Republic reports all pollutants under CLRTAP for all occurring sources.

38. The ERT recommends that the Party submits projected emissions for the 'With measures' and 'With additional measures' scenarios together with the associated social economic data for the years 2020 to 2050, if possible.

39. The ERT encourages the Czech Republic to provide complete and detailed information on recalculations in the 2012 IIR.

40. The ERT encourages the Czech Republic to list all sources as key sources that contribute an accumulated percentage of 80% of the total emissions for each pollutant, to apply Tier 2 or 3 methodologies and to present these sources as trends as well as well as percentage contributions.

41. The ERT encourages the Czech Republic to provide information on the notation keys used, especially IE and NE, within the reporting template.

42. The ERT encourages the Czech Republic to include the improvement plan in the IIR and to highlight how improvements are identified and prioritised. The improvement plan should also cover information about missing sources and whether there are any plans to include these in the future.

43. The ERT recommends that improvements related to specific source categories are presented in the relevant sector sections of this report.

44. The ERT recommends that the Czech Republic reports the trends for total emissions and key sources over the reported time series.

45. The ERT encourages the Czech Republic to provide more descriptions of the drivers in the IIR when explaining key trends, so as to fully explain significant dips and jumps.

SECTOR SPECIFIC RECOMMENDATIONS FOR IMPROVEMENTS IDENTIFIED BY ERT

ENERGY

Review Scope

Pollutants Reviewed		NOx, NMVOC, SOx NH3, PM10 & PM2.5, TSP, CO, Pb, Cd, Hg, As, Cr, Cu, Ni, Se, Zn, PCDD/PCDF, PAHs, HCB, PCB		
Years		1990 – 2009		
NFR Code	**CRF_NFR Name**	**Reviewed**	**Not Reviewed**	**Recommendation Provided**
1.A.1.a	public electricity and heat production	x		x
1.A.1.b	petroleum refining	x		x
1.A.1.c	Manufacture of solid fuels and other energy industries	x		x
1.A.2.a	iron and steel	x		x
1.A.2.b	non-ferrous metals	x		x
1.A.2.c	chemicals	x		x
1.A.2.d	pulp, paper and print	x		x
1.A.2.e	food processing, beverages and tobacco	x		x
1.A.2.f.i	Stationary Combustion in Manufacturing Industries and Construction: Other (Please specify in your IIR)	x		x
1.A.2.f.ii	Mobile Combustion in Manufacturing Industries and Construction: (Please specify in your IIR)			
1 A 3 e	Pipeline compressors?			
1.A.4.a.i	commercial / institutional: stationary	x		x
1.A.4.a.ii	commercial / institutional: mobile ?			
1.A.4.b.i	residential plants	x		x
1.A.4.b.ii	household and gardening (mobile)			
1.A.4.c.i	Agriculture/forestry/fishing. stationary	x		x
1.A.4.c.ii	off-road vehicles and other machinery?			
1.A.4.c.iii	national fishing?			
1.A.5.a	other, stationary (including military)	x		x
1.A.5.b	other, mobile (including military, land based and recreational boats)?			
1.B.1.a	coal mining and handling	x		x
1.B.1.b	solid fuel transformation	x		x
1.B.1.c	other fugitive emissions from solid fuels)	x		x
1 B 2 a i	Exploration, production, transport	x		x
1 B 2 a iv	Refining / storage	x		x
1 B 2 a v	Distribution of oil products	x		x
1 B 2 b	Natural gas	x		x
1 B 2 c	Venting and flaring	x		x
1 B 3	Other fugitive emissions from geothermal energy production , peat and other energy extraction not included in 1 B 2	x		x
Note: Where a sector has been partially reviewed (e.g. some of the NFR codes) please indicate which codes have been reviewed and which have not in the respective columns.				

General recommendations on cross-cutting issues.

Transparency:

46. The Czech Republic presents good explanation about methodology in the IIR. The ERT recommends that the Party adds activity data and emission factors to the IIR, see issue 1. Methodology explanations should also be developed to enhance the transparency of the report. The ERT encourages the Czech Republic to develop the cooperation with the CSO, as suggested by the Party (see issue 2).

Completeness:

47. The Czech Republic reports almost all pollutants for the energy sector. The ERT encourages the Party to also report the pollutants before 2000. Because of the need for environmental assessment, there is a great benefit when the coverage of reported data is as complete as possible for all pollutants.

48. The ERT notes that emissions for 1.B are reported in the NFR Tables but explanations about sources, activity data, emission factors and emissions are missing in the IIR. The ERT recommends that the Czech Republic improves the IIR for sub-sector 1.B, see issue 3.

49. Explanations for NE and IE are mentioned in the IIR and also reported in the "Additional Info" sheet of the NFR tables. The ERT notes that for HCB NE explanations are missing and recommends that the Party improves this.

50. The ERT notes that emissions for 1.A.5.a are reported in the NFR Tables but explanations about sources, activity data, emission factors and emissions are missing in the IIR. The ERT recommends that the Czech Republic improves the IIR for sub-sector 1.A.5.a.

Consistency including recalculation and time series:

51. The Czech Republic answered the ERT's questions by offering a lot of suggestions about data or units errors. The ERT supports all these suggestions and encourages the Party to check for outliers in the time series in general and for issues 4 to 14 below in particular.

52. The ERT also recommends that the Czech Republic adds information to the IIR about jumps and drops in the time series because some are quite important.

53. The ERT encourages the Czech Republic to add a list of explanations for recalculations done for the next submission (for the whole time series) to the IIR.

Comparability:

54. The ERT notes some differences between NECD and CLRTAP Tables (2008). Both submissions should present the same amount of emissions; therefore the ERT encourages the Party to verify the consistency of the reports.

Accuracy and uncertainties:

55. The Czech Republic provides, in its IIR, a general uncertainty evaluation, which is welcomed and useful. Therefore, the ERT recommends that the Party

extends the uncertainty analysis to the energy sector and provides uncertainties for the sub-sectors, too. Chapter 5 Part A of the EMEP Guidebook 2009 provides general guidance on uncertainties.

56. Moreover, the ERT recommends that the Party gives more explanations about quality checks of the data, see issue 2.

Improvement:

57. The Czech Republic does not mention any improvements in the IIR but mentions them in its answers to the ERT's questions. Therefore, the ERT recommends that the Party improves the NFR and the IIR for the energy sector as indicated in its responses. Moreover, the ERT encourages the Czech Republic to add a section "improvements" to the IIR to provide a continuous overview of the evolution of the IIR and the data.

Sub-sector Specific Recommendations.

58. The Czech Republic's IIR describes the inventory preparation process, which seems to be in accordance with the EMEP/CORINAIR Guidebook. The ERT encourages the Party to improve the description of the methodology by adding data flow diagrams to the IIR, thus improving the transparency of the IIR.

59. The Party uses a combined methodology with country-specific emission factors and activity data based on reports from operators, fuel consumption data and statistically monitored information. The ERT recommends that the Party adds information to the IIR about measurements and the acquisition of country-specific emission factors and activity data. The EMEP Guidebook 2009 provides useful information in Chapter 6 Part A about "Improvement and QA/QC".

60. The ERT also recommends that the Party adds activity data and emission factor tables to the IIR.

61. Finally, the ERT noticed some inconsistency in the time series of several sub-sectors (see issues 4 to 14). The ERT recommends that the Czech Republic checks reported time series and improves them if necessary. The Party can find some useful information in Chapter 4 Part A: Time series consistency, in the EMEP Guidebook 2009.

Category issue 1: 1.A - All Pollutants, AD, EF

62. The IIR of the Czech Republic provides some information about the methodology applied in the sub-sectors. This information is useful to understand how activity data and emission factor are obtained. Therefore, the ERT encourages the Party to extend the methodology explanations to the activity data and emission factors. Moreover, the ERT recommends that the Czech Republic adds activity data and emissions factors table to the IIR to improve the transparency of the report and to follow the calculation of the emissions.

Category issue 2: 1.A & 1.B - All Pollutants, AD, EF

63. The Czech Republic puts information about the inventory preparation process under 2.2 in the IIR. The Party explains that data provided by the operators are

verified before entering in the database REZZO. The ERT recommends that the Party gives more explanations about quality checks of the data in the IIR and adds information about emission factor determination, measurement or calculation. This will enhance the accuracy and the transparency of the report of the Czech Republic.

64. The Party expressed the wish for stronger cooperation with the CSO to improve correspondence between fuel consumption from REZZO and the energy balance. In addition, the ERT encourages the Party to also add data flow diagrams to the IIR in order to improve the accuracy and the transparency of the data flow.

Category issue 3: 1.B - All Pollutants, AD, EF

65. The ERT notes that the sub-sector 1 B is not described in the IIR, but that emissions are reported. The ERT recommends that the Czech Republic adds the description of 1 B to the IIR and also adds activity data and emission factors for the sub-sector. Moreover, the notation keys for activity data in the NFR tables have to be changed from NA to NE, as emissions are reported.

66. Finally, the ERT notes that emission values reported in the NFR tables are either "0" or reported only for some years. The ERT recommends that the Party checks the time series and replaces the "0" values with appropriate notation keys.

Category issue 4: 1.A.1.a: Public electricity – PM_{10}, TSP, Pb, DIOX

67. The Czech Republic informed the ERT of a unit mistake (Mg instead of Gg) for PM10 and TSP that will be corrected for the next submission; this is supported by the ERT. Also, for PM2.5, the ERT noticed missing data for 2002 and recommends that the Party verifies the missing values. If the Party has not received data from the operators for 2002, the ERT recommends that the data between 2001 and 2003 are interpolated to improve the consistency of the time series.

68. For Pb, the ERT notes a jump for 2005 and recommends that the Party checks the time series and adds explanations for the jump if necessary..

Category issue 5: 1.A.1.c: Manufacture on solid fuels – Hg, Cd, Pb, HCB, PCB

69. For Hg, Cd, Pb, HCB and PCB emission values are missing for 2003. The ERT recommends that the Czech Republic checks time series for these pollutants in the sub-sectors and if data are not available, the ERT recommends that the data are interpolated.

Category issue 6: 1.A.2 (excl. 1.A.2.f.i) - All pollutants

70. For the Sub-category 1 A 2, the ERT noticed that no emissions were reported before 2005. As the other sub-categories do have emissions, the ERT recommends that this gap is closed and that emissions before 2005 are also reported.

Category issue 7: 1.A.2.b - TSP

71. For 2008, the ERT notes that the PM10 emissions are higher than the TSP emissions, which should not happen. The ERT recommends that the Party checks this issue and corrects it for the next submission.

Category issue 8: 1.A.2.d - DIOX, PAH, and all

72. For DIOX, the ERT notes a drop in the emissions between 2006 and 2008 and the Czech Republic did not report emissions for PAH for 2006 and 2007. The ERT recommends that the Czech Republic checks the time series for these pollutants and adds the missing values (interpolation if necessary).

73. Moreover, the Czech Republic mentioned that the drop in the emission values for 2005 came from a reduction in production. The ERT recommends that the Party adds this explanation to the IIR to improve the consistency and the transparency of the time series.

Category issue 9: 1.A.2.f.i - PM10, TSP, HCB, PCB and all

74. The Czech Republic informed the ERT of a unit mistake (Mg instead of Gg) for PM10 and TSP that will be corrected for the next submission; this is supported by the ERT. For HCB and PCB, emission values are missing for 2003 and for all pollutants a drop appears in the emissions for 2005. The ERT recommends that the Party checks the time series and adds information about trends in the IIR.

Category issue 10: 1.A.4.a.i & 1.A.4.b.i - PM_{10}, TSP

75. The Czech Republic informed the ERT of a unit mistake (Mg instead of Gg) for PM_{10} and TSP that will be corrected for the next submission; this is supported by the ERT. Moreover, emission values are missing for 2002, the ERT recommends that the Party adds the missing values.

Category issue 11: 1.A.4.c.i - NMVOC, PM_{10}, TSP, NH3, DIOX, PCB, HCB

76. The Czech Republic informed the ERT of a Unit mistake (10 times too high) for NMVOCs that will be corrected for the next submission; this is supported by the ERT.
Finally, NH_3 emissions are reported for 2005 only, which is not consistent. The ERT recommends that the Party checks the time series and verifies this outlier.

TRANSPORT

Review Scope

Pollutants Reviewed		SO2, NOx, NMVOC, NH3, PM10 & PM2.5, CO, HMs, POPs, activity data		
Years		1990 – 2009		
NFR Code	**CRF_NFR Name**	**Reviewed**	**Not Reviewed**	**Recommendation Provided**
1.A.3.a.i.(i)	international aviation (LTO)	x		x
1.A.3.a.i.(ii)	international aviation (cruise)	x		x
1.A.3.a.ii.(i)	civil aviation (domestic, LTO)	x		x
1.A.3.a.ii.(ii)	civil aviation (domestic, cruise)	x		x
1.A.3.b.i	road transport, passenger cars	x		x
1.A.3.b.ii	road transport, light duty vehicles	x		
1.A.3.b.iii	road transport, heavy duty vehicles	x		
1.A.3.b.iv	road transport, mopeds & motorcycles	x		x
1.A.3.b.v	road transport, gasoline evaporation	x		
1.A.3.b.vi	road transport, automobile tyre and brake wear	x		
1.A.3.b.vii	road transport, automobile road abrasion	x		
1.A.3.c	railways	x		x
1.A.3.d.i (ii)	international inland navigation		NO	
1.A.3.d.ii	national navigation	x		x
1.A.4.b.ii	household and gardening (mobile)	x		
1.A.4.c	agriculture / forestry / fishing	x		
1.A.4.c.ii	off-road vehicles and other machinery	x		
1.A.4.c.iii	national fishing	x		x
1.A.5.b	other, mobile (including military, land based and recreational boats)	x		
1 A 3 d i (i)	International maritime navigation		NO	
1 A 3	Transport (fuel used)	x		
Note: Where a sector has been partially reviewed (e.g. some of the NFR codes) please indicate which codes have been included and which have not in the respective columns.				

General recommendations on cross-cutting issues.

Transparency:

77. The Czech Republic has provided a detailed emissions inventory. Estimates are provided at the most detailed level for all sub-sectors. However, only limited information on the methodology and/or emission factors used for the estimation of emissions has been provided in the IIR. It is understood that the Czech Republic uses its own methods and emission factors for a number of sub-sectors and pollutants. The ERT thus recommends that the Party includes more information on the methodology and the country-specific emission factors used for compiling the inventory.

78. The Czech Republic uses zero-values in a number of areas in the reporting tables, e.g. for PM and HM emissions from aviation, mopeds/motorcycles, non-exhaust sources, etc. The ERT encourages the Czech Republic to use the appropriate notation keys (e.g. NO where emissions are “Not Occurring”, NE where

emissions are “Not Estimated” and IE where emissions are “Included Elsewhere”) for reporting where estimates are not available or necessary.

79. Since the Czech Republic’s own methods and/or emission factors are used, the ERT recommends that the Czech Republic provides clear references to these and, if possible, comments on how these compare to recommended methods, e.g. the Guidebook.

Completeness:

80. The ERT considers the transport sector to be complete for all pollutants and activity data.

Consistency including recalculation and time series:

81. No comparison to previous years is provided in the IIR. The ERT encourages the Czech Republic to include complete time series and provide a description of trends in the IIR.

82. The Czech Republic has not recalculated emissions for any of the pollutants reported in the inventory.

Comparability:

83. Based on reported activity data, emissions from passenger cars (including light duty vehicles) seem to be underestimated for all main pollutants, including PM and CO, whereas emissions from heavy duty vehicles seem to be overestimated for the same pollutants (with the exception of NOx). The ERT recommends that the Party checks the estimated emissions for all transport sub-sectors and in particular for passenger cars and heavy duty vehicles, and that it provides supplementary information on its own methods and/or emission factors.

Accuracy and uncertainties:

84. The Czech Republic has provided some basic uncertainty estimates based on expert judgement. The ERT encourages the Party to undertake uncertainty analysis in order to help inform the improvement process and to provide an indication of the reliability of the inventory data.

85. No QA/QC activities related to transport are mentioned in the IIR. The ERT encourages the Party to provide sector specific information on QA/QC procedures in future submissions.

Improvement:

86. The ERT notes that no improvement plan for the transport sector is reported in the IIR.

Sub-sector Specific Recommendations.

Category issue 1: 1.A.3.b.i-ii Road transport: All Pollutants

87. Emissions from light duty vehicles are included in the passenger car category due to the similar vehicle configuration, as explained by the Czech Republic during

the review process. The ERT recommends that the Party splits these emissions into passenger cars and light duty vehicles, as described in the Guidebook.

Category issue 2: 1.A.3.b.i Road transport: Activity data

88. A zero value is reported for biofuels consumption from road transport whereas a value of 6577 TJ is reported for the same sector under UNFCCC. During the review the Czech Republic acknowledged this and stated that it would be corrected for next submission. The ERT welcomes the Czech Republic's intention to report biofuel consumption and recommends allocating this to the various sub-categories.

Category issue 3: 1.A.3 Transport: All pollutants

89. In the IIR it is indicated that emissions from aviation, road transport, railways and other mobile sources have been calculated on the basis of both fuel sold and fuel used. During the review the Czech Republic made it clear that transit fuel has been taken into account and hence emissions are in fact estimated from fuel sold. The ERT recommends making this clear in the IIR and also in the "Additional info" sheet of the reporting template.

INDUSTRIAL PROCESSES

Review Scope

Pollutants Reviewed		All main pollutants, particulate matter, heavy metals and POPs		
Years		1990 – 2009		
NFR Code	**CRF_NFR Name**	**Reviewed**	**Not Reviewed**	**Recommendation Provided**
2.A.1	cement production	x		
2.A.2	lime production	x		
2.A.3	limestone and dolomite use	x		
2.A.4	soda ash production and use			x
2.A.5	asphalt roofing		x	
2.A.6	road paving with asphalt			x
2.A.7.a	Quarrying and mining of minerals other than coal	x		x
2.A.7.b	Construction and demolition	x		
2.A.7.c	Storage, handling and transport of mineral products	x		x
2.A.7.d	Other Mineral products (Please specify the sources included/excluded in the notes column to the right)	x		x
2.Bb.1	ammonia production			x
2.B.2	nitric acid production	x		
2.B.3	adipic acid production		x	
2.B.4	carbide production		x	
2.B.5.a	Other chemical industry (Please specify the sources included/excluded in the notes column to the right)	x		x
2.B.5.b	Storage, handling and transport of chemical products (Please specify the sources included/excluded in the notes column to the right)	x		x
2.C.1	iron and steel production	x		x
2.C.2	ferroalloys production	x		x
2.C.3	aluminium production	x		x
2.C.5.a	Copper Production	x		x
2.C.5.b	Lead Production	x		x
2.C.5.c	Nickel Production		x	
2.C.5.d	Zinc Production	x		x
2.C.5.e	Other metal production (Please specify the sources included/excluded in the notes column to the right)	x		x
2.C.5.f	Storage, handling and transport of metal products (Please specify the sources included/excluded in th notes column to the right)	x		x
2.D.1	pulp and paper	x		x
2.D.2	food and drink	x		x
2.D.3	Wood processing	x		x
2.E	production of POPs		x	
2.F	consumption of HM and POPs (e.g. electrical and scientific equipment)		x	
2.G	Other production, consumption, storage, transportation or handling of bulk products (Please specify the sources included/excluded in the notes column to the right)	x		x
Note: Where a sector has been partially reviewed (e.g. some of the NFR codes) please indicate which codes have been reviewed and which have not in the respective columns.				

General recommendations on cross-cutting issues

Transparency:

90. The ERT understands that the Czech Republic neither reports activity data in the NFR tables nor detailed methodologies in the IIR, due to the practice of direct reporting by operators who are not obliged to report activity data or the methods they apply. Without activity data and without a detailed methodology description, it is not possible to assess the reported emissions, e.g. by calculating implied emission factors which could be compared with those from other parties or with defaults. Furthermore, the consistency and the accuracy of the reported emissions cannot be evaluated.

91. The ERT encourages the Czech Republic to establish a legal basis for the collection of activity data as well as methodical information from the operators. This activity data could be collected either together with the emission data or separately by the national statistics office. As the activity data from the individual companies would be aggregated on the national level, confidentiality should not be an issue for most sectors.

92. Neither in the NFR tables nor in the IIR is it specified which kind of sources are covered in the Czech Republic's submission in the following source categories:

(a) 2 A 7 d Other Mineral products

(b) 2 B 5 a Other chemical industry

(c) 2 B 5 b Storage, handling and transport of chemical products

(d) 2 C 5 e Other metal production

(e) 2 C 5 f Storage, handling and transport of metal products

(f) 2 D 3 Wood processing

(g) 2 G Other production, consumption, storage, transportation or handling of bulk products

93. Some examples for these source categories can be found in Annex 1 of Decree 615/2006 Coll from the Czech Republic as well as in Annex 2 of the IIR, but direct reporting by the operators does not make it sufficiently clear which kind of sources the reported emissions actually refer to.

94. The ERT encourages the Czech Republic to collect additional information on the kind of sources covered in its reports and describe the results in future IIRs. This would help to improve transparency and to facilitate comparison with other inventories or with the default emission factors.

Completeness:

95. For some industrial source categories activity data is available in the CRF tables (UNFCCC reporting, submission 2011), but has not been reported under CLRTAP.
Additionally, although activity data for the source categories 2A4, 2A6 and 2B1 was reported under UNFCCC, no emissions from these sectors were reported under CLRTAP. On the other hand, for the source categories 2A7a, 2A7c, 2B5b, 2C2, 2C3, 2C5a, 2C5b, 2C5d, 2C5e, 2C5f, 2D1, 2D2, 2D3 and 2G emissions were reported

under CLRTAP but no activity data was reported (neither under CLRTAP nor under UNFCCC) (submission 2011).

96. The ERT encourages the Czech Republic to improve the consistency of CLRTAP and UNFCCC reporting. Utilization of synergies between CLRTAP and UNFCCC reporting would also help to improve completeness of the inventories. In particular, the ERT recommends checking at regular intervals if emissions are reported - under both CLRTAP and UNFCCC - for each source category where activity data is available at least in one inventory.

97. The ERT noticed some gaps in the following time series:

(a) 1A1c: Hg (2003)

(b) 1A2b: Pb (2001-2004)

(c) 2C1: Cd, Pb (2001-2006)

(d) 2C2: Cd, Pb, dioxin (2001-2006; dioxin also in 2009)

(e) 2C5e: PM2.5 (2001, 2002, 2009), Cd (2001; 2007-2009), CO (2009), Pb (2001, 2008, 2009)

(f) 2G: TSP (2004), PM10 (2002, 2004)

98. The Czech Republic announced that it would check these gaps and correct the data, if necessary, for the next submission.

99. The ERT encourages the Czech Republic to complete the time series as foreseen. If no original data is available to fill the gaps; it is recommended that the missing values are interpolated according to the guidelines. If it was intended to report zero emissions in particular cases, e.g. because of the cessation of activities in the sector in question, or because the emissions were reported elsewhere, the ERT recommends that the appropriate notation keys (e.g. 'NO', 'IE') are used and that a short explanation is provided in the IIR.

Consistency including recalculation and time series:

100. Emission trends are generally not described in the IIR. The ERT encourages the Czech Republic to describe emission trends transparently in the IIR, in particular the reasons for dips and jumps. The ERT noticed outliers in the following time series:

(a) TSP: 1A2fi, 2A7d, 2C5e, 2G

(b) PM_{10}: 1A2fi, 2A7d, 2C5e, 2G

(c) $PM_{2.5}$: 2C5e

(d) Cd: 1A2fi, 2C1, 2C2, 2C5e

(e) CO: 2C5e

(f) Hg: 1A1c, 1A2b, 1A2fi

(g) Pb: 1A2b, 1A2fi, 2C1, 2C2, 2C5e

(h) Dioxin: 2C2

101. E.g. for dioxin emissions from source category 2.C.2, around 19 g were reported for the years 2007 and 2008, but only 0,000000007 g were reported for 2009. The Czech Republic intends to check and to correct the data, if necessary, for the next submission.

102. The ERT encourages the Czech Republic to correct the outliers or to provide an explanation, if appropriate. If the data provided by the operators is apparently inconsistent, the ERT encourages the Czech Republic to intensify QA/QC for the incoming data. If the outliers cannot be traced back to a particular source, the ERT encourages the Czech Republic to determine which figures seem to be more realistic in order to provide consistent time series.

Comparability:

103. As only little information was provided on the methods used for emission estimations, the ERT could not assess or assure the comparability of the reported emissions.

104. The ERT recommends that the Czech Republic either applies the methods from the Guidebook or that it describes the country-specific methods transparently and in detail in the IIR.

105. A special issue of comparability is how emissions from industry are allocated to the source categories 2.x (Industrial Processes) and the corresponding source categories 1.A.x (Stationary Combustion in Manufacturing Industries), e.g. between NFR 2.C.1 and 1.A.2.a. During the review, the Czech Republic explained that the distribution between categories 1.A.x and 2.x is usually carried out according to the use of fuel, e.g. that the manufacturing of cement clinker in rotary ovens is included in category 1.A.2.f.i, whereas the handling of raw materials and products is included in category 2.A.1. This allocation is carried out by the operators when they report emissions from individual sources within their plant. The ERT notes that this way of allocating emissions between source categories 1.A.x and 2.x is in line with the Guidebook for some industrial sectors, e.g. 2.A.1, but not for all sectors. E.g. for emissions from the iron and steel industry the Guidebook only provides default emission factors for NO_x , SO_2 and CO in source category 1.A.2.a, whereas guidance on estimating other pollutants is provided in chapter 2.C.1. Hence, emissions of those pollutants are expected to be reported under 2.C.1. But in the Czech NFR tables for most pollutants, the emissions reported under 1.A.2.a are higher than the emissions reported under 2.C.1, so apparently most emissions from the iron and steel industry have been reported under 1.A.2.a. This is not in line with the Guidebook and thus hampers comparability. Additionally, as the allocation is carried out individually by the operators, this may also be an issue of consistency and accuracy. E.g. the dioxin emissions from 1.A.2.a and 2.C.1 are of the same order of magnitude, which indicates that they might be reported inconsistently by the individual operators, and that even some double counting of emissions may have occurred.

106. The ERT encourages the Czech Republic to allocate the emissions to source categories 1.A.x and 2.x according to the Guidebook. If the methods from the Guidelines are not clear or not applicable in particular cases, the ERT recommends that the Czech Republic describes its country-specific method in detail in the IIR.

Regardless of which methods are applied, it is crucial that these methods are used consistently by all operators as well as across the complete time series.

Accuracy and uncertainties:

107. Due to the lack of information (see Transparency issues), the ERT could not assess or assure the accuracy of the reported emissions.

108. The ERT encourages the Czech Republic to collect more information (e.g. activity data) in order to facilitate quality checks and to undertake uncertainty analysis for the industrial emissions. This would deliver important information for the improvement process and provide an indication of the reliability of the reported data.

Improvement:

109. No improvements are announced in the IIR.

Sub-sector Specific Recommendations.

110. No sector specific issues are raised, but a lot of individual sectors have already been addressed in the general recommendations (see above).

SOLVENTS

Review Scope

Pollutants Reviewed		SO_2, NOx, NMVOC, NH_3, PM_{10} & $PM_{2.5}$, Heavy Metals, CO and PAHs		
Years		2001 – 2009		
NFR Code	**CRF_NFR Name**	**Reviewed**	**Not Reviewed**	**Recommendation Provided**
3.A.1	Decorative coating application	**x**		x
3.A.2	Industrial coating application	**x**		x
3.A.3	Other coating application (Please specify the sources included/excluded in the notes column to the right)	**x**		x
3.B.1	Degreasing	**x**		x
3.B.2	Dry cleaning	**x**		x
3.C	Chemical products,	x		x
3.D.1	Printing	**x**		x
3.D.2	Domestic solvent use including fungicides	x		x
3.D.3	Other product use	x		x
Note: Where a sector has been partially reviewed (e.g. some of the NFR codes) please indicate which codes have been reviewed and which have not in the respective columns.				

General recommendations on cross-cutting issues

Transparency:

111. The ERT notes that the Czech Republic reports no information in the IIR on the activity data and the methods / emission factors / assumptions used for the estimations provided for emissions from the solvents sector. During the review, the Czech Republic provided qualitative information about AD and EFs and expressed its intention to deliver the AD and EFs per source category in the next submission. The ERT commends the Czech Republic for this effort and strongly encourages it to provide comprehensive activity data and methodology descriptions with good levels of detail in the next submission, in order to improve the transparency of its inventory.

Completeness:

112. The ERT notes that the ratio of per capita NMVOC emissions from the solvent sector in the Czech Republic is higher than in neighbouring countries such as for example Austria, Germany and Poland. This gives the impression that the inventory has a rather high level of completeness. However, the ERT notes that very limited information is provided in the IIR about the estimation of the emissions of the solvents sector. During the review, the Czech Republic provided information about which SNAP categories per source category are included in the inventory. According to this information, the ERT considers the solvent sector to have reached a good level of completeness for the years 2001 - 2009. The ERT recommends that the Czech Republic reports this information in next year's IIR.

113. The ERT notes that NMVOC emissions for the years 1990-2000 were not reported. The ERT encourages the Czech Republic to estimate and report these

emissions in the next submission. If the required data are not available, the Czech Republic could apply simple drivers such as population figures or GDP data to provide an estimation of the emissions for these years.

114. The ERT encourages the Czech Republic to improve the completeness of its inventory by providing estimations of NMVOC emissions in a number of SNAP categories that have not been included in the reported emissions under the source categories 3A2, 3C and 3D3. The same applies to the NOx, PM10 & PM2.5, heavy metals, PAHs and CO emissions from the 3C and 3D3 categories.

Consistency including recalculation and time series:

115. The ERT notes that the NMVOC emissions of the source categories 3A, 3B, 3C and 3D have shown a decreasing trend since 2001. During the review, the Czech Republic responded that the decreasing trend is attributed to declining production levels in many sectors and abatement measures introduced under the IPPC Directive (since 2003) and an Air Protection Law (86/2002)setting emission limits for TOC. The ERT encourages the Czech Republic to include an elaboration of trends, at least for the key sources, in the next IIR.

116. The ERT notes that no recalculations were performed in the 2011 submission.

Comparability:

117. During the review, the Czech Republic explained that Decree 509/2005 and the Air Protection Law (86/2002) set limits for TOC, which are used as EF for some categories. The ERT encourages the Czech Republic to elaborate more on this issue by providing quantitative information in the next submission. If a different EF (other than the ones described in the Guidebook) is used, the Czech Republic is encouraged to describe the rationale behind selecting a different EF.

Accuracy and uncertainties:

118. The ERT notes that no uncertainty analysis is performed by the Czech Republic for the solvents sector concerning CLRTAP emissions. The ERT encourages the Czech Republic to undertake uncertainty analysis for the solvent sector in order to prioritize improvement actions and to provide an indication of the reliability of the inventory data.

119. The ERT notes that the Czech Republic performs some general QA/QC procedures. Moreover, the Party compares the data obtained from manufacturers' reports with the emissions from the Register of Emissions and Air Pollution Sources (REZZO). The ERT commends the Czech Republic for this approach. However, since almost the whole solvents sector is a key source of NMVOC emissions, the ERT encourages the Czech Republic to design and implement sector specific OA/QC and verification procedures for NMVOC emissions in the solvents sector and report accordingly in the next submission.

Improvement:

120. The ERT notes that no improvement plan for the solvents sector is mentioned in the IIR. However, during the review the Czech Republic stated that it has plans for

improving the inventory by organizing a more thorough investigation of emission calculations in some sectors based on the REZZO database. The ERT commends the Party for this improvement plan and encourages the Czech Republic to include the outcome in the next submission.

Sub-sector Specific Recommendations.

Category issue 1: 3.A Paints and Coatings – NMVOC

121. During the review, the ERT has identified that the categories SNAP 060105 and 060107 were not estimated (3A2). The ERT encourages the Czech Republic to estimate these emissions and report them in the next submission.

Category issue 2: 3.C Chemical Products, Manufacture & Processing – NMVOC, TSP, heavy metals and PAHs

122. During the review, the Czech Republic responded that the 3C emissions are estimated as a total of the SNAP 060300 categories. The ERT encourages the Czech Republic to improve the accuracy and transparency of its inventory by estimating and reporting, in the next submission, the emissions separately per SNAP category of the 3C source category. The Czech Republic may use production statistics along with the easy-to-apply Tier 2 methods contained in the 2009 Guidebook.

123. The ERT has noticed that the Czech Republic did not report NMVOC, TSP, heavy metals and PAH emissions from asphalt blowing. During the review, the Czech Republic responded that there is a possibility to find AD for asphalt production. The ERT encourages the Czech Republic to include these emissions in the next submission.

Category issue 3: 3.D.3 – NMVOC, NOx, heavy metals, CO and PAHs

124. During the review, the Czech Republic responded that the 3D3 emissions are estimated as a total of the SNAP 060400 categories. The ERT encourages the Czech Republic to improve the accuracy and transparency of its inventory by estimating and reporting, in the next submission, the emissions separately per SNAP category of the 3D3 source category. The Czech Republic may use production statistics and the easy-to-apply Tier 2 methods contained in the 2009 Guidebook.

125. The ERT identified that the Czech Republic did not report NOx, heavy metals, CO and PAHs emissions from the SNAP 060404, 060406 and 060601-4 categories. The ERT encourages the Czech Republic to estimate and include these emissions in the next submission, by using the easy-to-apply Tier 2 methods contained in the 2009 Guidebook.

AGRICULTURE

Review Scope:

Pollutants Reviewed		No emissions reported		
Years				
NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendation Provided
4 B 1 a	Cattle dairy	x		x
4 B 1 b	Cattle non-dairy	x		x
4 B 2	Buffalo	x		x
4 B 3	Sheep	x		x
4 B 4	Goats	x		x
4 B 6	Horses	x		x
4 B 7	Mules and asses		x	
4 B 8	Swine	x		x
4 B 9 a	Laying hens	x		x
4 B 9 b	Broilers	x		x
4 B 9 c	Turkeys	x		x
4 B 9 d	Other poultry	x		x
4 B 13	4 B 13 Other	x		x
4 D 1 a	Synthetic N-fertilizers	x		x
4 D 2 a	Farm-level agricultural operations including storage, handling and transport of agricultural products	x		x
4 D 2 a	Off-farm storage, handling and transport of bulk agricultural products		x	
4 D 2 c	N excretion on pasture range and paddock unspecified (Please specify the sources included/excluded in the notes column to the right)		x	
4 F	Field burning of agricultural wastes		x	
4 G	Agriculture other(c)		x	
11 A	(11 08 Volcanoes)		x	
11 B	Forest fires		x	
Note: Where a sector has been partially reviewed (e.g. some of the NFR codes) please indicate which codes have been reviewed and which have not in the respective columns.				

General recommendations on cross-cutting issues

Transparency:

126. The ERT thanks the Party for providing comprehensive and quick responses during the review process about how the calculations are made.
The Czech Republic uses zero values in a number of areas in the reporting tables. The ERT encourages the Czech Republic to use appropriate notation keys (e.g. NO where sources are “Not Occurring”, NE where emissions are “Not Estimates” and IE where emissions are “Included Elsewhere”) for reporting where estimates are not available or necessary.

127. The description of methodologies in the IIR is very short and references and data are not fully provided. It appears that the Czech Republic has implemented complete methodologies but that the IIR does not allow a full understanding of how the estimations are done because the methodologies are not described in detail.

There are no references to the sources and activity data, and emission factors are not provided in the report.
The Czech Republic uses country-specific EFs. Thus, the Party should specify from which data source the country-specific EFs have been derived (measurement, scientific literature analysis etc.). Indeed, the Party is encouraged to use country-specific EFs insofar as they reflect a specific situation. The ERT recommends that the Czech Republic provides a transparent description of the methodologies applied.

Completeness:

128. The inventory is nearly complete with respect to ammonia and particulate matter emissions. NOx emissions are not estimated and NMVOCs are only reported for 4B1a. The ERT encourages the Party to provide NOx emissions for the main animal categories and NMVOC where possible. During the stage 3 review, the Party asked if NO emissions from 4B could be reported in the same column as NO2 emissions. The ERT reminded the Party that "NOx (as NO2)" means that NO must be converted into "NO2 equivalent" and that all the NOx emissions must be reported in column F as NO2 equivalents (please refer to the EMEP/EEA Guidebook 2009 for details).

Consistency, including recalculation and time series:

129. For the year 2008, emissions of NH3 increased by 44.35% between the 2011 and 2010 CLRTAP submissions. This important jump is not mentioned in the IIR. The issue is linked to a difference of 38.2% between the LRTAP and NEC submission for the year 2008. It appeared during the review process that there was an error for 4D1a in 2008 in CLRTAP reporting and that the emission value should have been 22.8kt. The ERT acknowledges the intention of the Czech Republic to change this value in the next submission.

Comparability:

130. Activity data (animal numbers and synthetic fertilizer consumption) from the NFR-tables are different from the figures provided in the CRF tables (UNFCCC report) and from the FAO data. There are important differences with respect to 4B1, 4B4, 4B5, and 4D1a (when taking 10% of volatilization for fertilizers to correct the figure provided in the CRF table 4D, as required by the UNFCCC). All the reporting formats should be consistent, especially for UNECE and UNFCCC reporting. The ERT recommends that the Czech Republic harmonises the activity data across the different reporting formats (UNFCCC, CLRTAP, NEC and FAO).

131. For NH_3 emissions, the ERT has found differences between NECD and LRTAP reporting. This issue was not resolved during the review process. The ERT recommends that the Czech Republic identifies the origins of these discrepancies.

Accuracy and uncertainties:

132. The ERT encourages the Czech Republic to undertake an uncertainty analysis (quantitative where possible) for the agriculture sector, in order to steer the improvement process and to provide an indication on the reliability of the inventory data.

Improvement:

133. No planned improvements are specified in the Czech Republic's IIR. Although no short-term improvements on methodologies are foreseen, the ERT strongly encourages the Czech Republic to improve the transparency of its reporting by providing a complete and comprehensive agriculture chapter in the IIR. The ERT also recommends that the Party provides a qualitative uncertainty analysis.

Sub-sector Specific Recommendations.

Category issue 1: 4.B Manure management - NH3

134. The ERT notes that the methodology description for NH3 emissions from 4B Manure Management is not clearly presented. IEFs are generally low compared to EMEP 2009 standards. To justify this during the stage 3 review, the Czech Republic has explained that abatement measures have been taken into account and that according to currently available information, approximately 89% of the laying hens, 86% of the broilers, 32% of the rearing pigs and 32% of the sows are held in installations in compliance with the IPPC Directive. The Czech Republic states that these farms are prompted by EU legislation to apply ammonia emissions abatement measures and that in these farms only BAT technologies can be applied. Nevertheless, being an IPPC farm does not mean that BATs are compulsory. The ERT is aware of the fact that gathering data about farm practices is a difficult process. However, the implementation of abatement techniques should be justified. The ERT recommends that the Party explains precisely how abatement technologies are taken into account and that it provides information on penetration rates, abatement rates and data sources.

Category issue 2: 4.D.1 Agricultural Soils - NH3

135. The ERT encourages the Czech Republic to provide detailed information on the breakdown of national fertilizer consumption (especially for urea application) into the relevant compounds in use, which are accounted for in the emission estimates under 4D1 Direct Soil Emissions.

WASTE

Review Scope:

Pollutants Reviewed		All pollutants		
Years		1990-2008		
NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendation Provided
6.A	solid waste disposal on land	x		x
6.B	waste-water handling	x		x
6 C a	6 C a Clinical waste incineration (d)	x		x
6 C b	Industrial waste incineration (d)	x		x
6 C c	Municipal waste incineration (d)	x		x
6 C d	Cremation	x		x
6 C e	Small-scale waste burning	x		x
6.D	other waste (e)	x		x
Note: Where a sector has been partially reviewed (e.g. some of the NFR codes) please indicate which codes have been reviewed and which have not in the respective columns.				

General recommendations on cross-cutting issues

Transparency:

136. The Czech Republic very briefly describes the emissions calculations it has performed and gives only some general references about activity data and EF sources in the IIR. The ERT encourages the Czech Republic to describe the emission calculation procedure in more detail. If data comes directly from operators, including a short profile description of the relevant enterprises is recommended.

Completeness:

137. The Czech Republic reports emissions in 6 waste sub-sectors (of 7). The methodological description of emission calculations in the IIR is very short and does not provide all the necessary information to fully understand the emission calculations. Not all activity data are provided in NFR tables, also for sectors where emissions are calculated. The ERT recommends adding necessary information to the IIR and the NFR tables. The use of notation keys and “0” in the NFR waste sectors should be revised.

Consistency, including recalculation and time series:

138. Emissions from the waste sub-sectors are not consistent for all pollutants. The ERT suggests explaining the differences in the IIR.

139. No recalculations performed by the Czech Republic in its last submission (2011).

Comparability:

140. Regarding emission factors, the Czech Republic makes reference to national legal acts in place. ERT recommends that more explanations and descriptions are provided about these legal acts to ensure comparability with EU legislation and other international methodologies.

Accuracy and uncertainties:

141. Procedures for QA/QC are not described in the IIR 2011.

142. The Czech Republic provides a general uncertainty analyses in the IIR; a more detailed description for the waste sector should be provided. Moreover, a general description of the operator's data validation processes would be useful.

Improvement:

143. No improvements are mentioned by the Czech Republic in the IIR 2011.

Sub-sector Specific Recommendations.

Category issue 1: 6.A Solid waste disposal on land

144. The ERT recommends that the Czech Republic provides activity data for disposal wastes. This data could be obtained from country reports to Eurostat or UNFCCC reports. The emission value "0" should be revised and where no emissions have been calculated a notation key should be used (NO, NE or NA). More detailed information about waste amount estimations (data source etc.) should be provided.

Category issue 2: 6.B Waste-water handling

145. The Czech Republic does not provide activity data for waste water sub-sector emission calculations. Detailed descriptions of the calculation methodology and activity data should be provided. The emission value "0" should be revised and where no emissions have been calculated a notation key should be used (NO, NE or NA).

Category issue 3: 6.C.a, 6.C.b, 6.C.c – Waste incineration (clinical, industrial, municipal)

146. The ERT encourages the Czech Republic to provide information on how much operators are involved in these activities and which emissions factors they use. A short description about the operators' profile would be useful to estimate their compliance for these sectors.

Category issue 4: 6.C.d - Cremation

147. The Czech Republic has calculated emissions from cremation. An explanation for this activity is missing in the IIR.

Category issue 5: 6.C.e – Small-scale waste burning

148. The Czech Republic reports an emission value of "0" for this activity. The ERT recommends revising this estimation and using either a real emission value or a notation key (NO, NE).

Category issue 6: 6.D - Other waste

149. The Czech Republic reports emissions for this sub-sector. The ERT recommends that it should be described, in the IIR, what kind of activities take places in the Czech Republic and what kind of methodology is used to estimate these emissions.

LIST OF ADDITIONAL MATERIALS PROVIDED BY THE COUNTRY DURING THE REVIEW

1. Energy: additional materials provided by Slovenia during the Stage 3 Review week; Energy_Q6-TK_POP COUNT_TKaPOP_CR.xls, Energy Q7 -EF-1A4bi.xls
2. Agriculture: additional materials had been provided during the review week