**UNITED
NATIONS**

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

LATVIA

CONTENT

INTRODUCTION

1.   The mandate and overall objectives for the emission inventory review process under the LRTAP Convention are given 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 concentrated on SO_2, NOx, NMVOC, NH_3, plus PM_{10} & $PM_{2.5}$ for the time series years 1990 – 2011, reflecting current priorities from 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 Latvia coordinated by the EMEP emission centre CEIP acting as review secretariat. The review took place from 17th June 2013 to 21st June 2013 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 – Kristina Saarinen (Finland), Energy – Ole-Kenneth Nielson (Denmark), Transport – Nina Holmengen (Norway), Industry – Kees Peek (Netherlands), Solvents – Ardi Link (Estonia), Agriculture & Nature – Michael Anderl (Austria), Waste – Katja Hjelgaard (Denmark).

4.   Kevin Hausmann 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 inventory is generally in line with the EMEP EEA inventory Guidebook and the UNECE Reporting Guidelines. Emissions reported under the CLRTAP and the NECD are consistent. The 2013 submission included improvements related to most of the recommendations from the previous review.

6.   The ERT notes that in general, the inventory is transparent and well documented. There is, however, a need to further improve the use of notation keys, documentation of QA/QC work, and the methodologies and documentation in certain sectors as described below.

7.   Latvia has carried out recalculations and provided justifications for these recalculations and provides an analysis of their impact on emission levels. However, the methodologies used over the years are not fully consistent.

8.   The ERT notes substantial improvements in the inventory since the last review in 2009 and commends Latvia for its work. The ERT also notes a need for further improvements as detailed at the end of Part A.

INVENTORY SUBMISSION

9.   Latvia submitted its inventory under the NECD on 31.12.2012 and under the CLRTAP on 14.2.2013. Both submissions met the deadlines and were followed up by re-submissions. The submissions included NFR tables from 1990 to 2011 (the latest year) for the NECD pollutants NO_x, SO_2, NH_3, NMVOC, and under the CLRTAP also for the following heavy metals As, Cd, Cr, Cu, Hg, Ni, Pb, Se and Zn and POPs: HCB, PCDD/F, PAH-4 and PCB, as well as for CO, TSP, PM_{10}, and $PM_{2.5}$, in NFR format. Latvia provided an IIR on 15.03.2013.

10.   Latvia provided projected emissions in 2009 and LPS data in 2012, but it did not provide gridded data.

The ERT finds that the inventories are of good quality and well documented in the informative inventory report (IIR). Due to the availability of the IIR and the Party's responsiveness, the ERT was able to review the inventory in detail and provide a number of detailed recommendations.

KEY CATEGORIES

11.   Latvia has compiled and presented in its IIR a key category analysis (KCA) for the latest inventory year (2011) and for trends of the following pollutants: NO_X, CO, NMVOC, SO_2, NH_3, TSP, PM_{10} and $PM_{2.5}$, Cd, Hg, Pb, PCDD/F and PAH-4 including all sectors. The analysis was performed at Tier 1 level for both emission levels and emission trends according to the 2009 EEA/EMEP Guidebook. The KCA performed by the Party and the CEIP produced similar results.

12.   According to the UNECE Reporting Guidelines, Parties should identify in their IIR national key categories as described in the Guidebook for the base year and the latest inventory year. Latvia has, however, not presented a KCA for the base years of

pollutants in the IIR. The ERT recommends that Latvia adds a KCA for the base years of pollutants in the IIR of its next submission.

13.   Latvia does not indicate in the IIR whether the key category analysis is used to prioritise improvements in the inventory. The ERT recommends that Latvia uses the KCA for this purpose.

QUALITY

Transparency

14.   The ERT recognises the level of effort undertaken by Latvia in providing a detailed inventory to enable an in-depth review. The ERT found the inventory and the IIR to be of good quality. To further improve the transparency of the inventory the ERT recommends that Latvia improves its documentation in the IIR on the agriculture sector and corrects the use of some notation keys (NO, NA, IE) as described below.

15.   The ERT commends Latvia for providing information on where the sources reported as included elsewhere (IE) are allocated. The ERT recommends that Latvia studies ways to report these emissions separately under their proper NFR category.

Completeness

16.   The ERT acknowledges the effort which Latvia has made to provide estimates of emissions for all sectors and all pollutants reviewed. Latvia's inventory is in general complete, for the years submitted and in terms of geographical coverage.

17.   The ERT commends Latvia for providing explanations in the IIR for the use of the notation key NE.

Consistency, including recalculations and time series

18.   Latvia carried out recalculations in 2012 in the energy and transport sectors. The IIR provides justifications for the recalculations and analyses their impact on emission levels. However, given the different tiers/levels of the methods used for the different years, the ERT recommends that Latvia uses consistent methodologies to estimate emissions.

Comparability

19.   The ERT notes that the inventory of Latvia is comparable with those of other reporting parties. The allocation of source categories follows that of the EMEP/UNECE Reporting Guidelines. The ERT encourages Latvia to continue with this approach to national inventory calculation.

CLRTAP/NECD comparability

20.   The ERT notes that the inventories submitted by Latvia under the NECD and the CLRTAP show no differences between the estimates. The ERT commends Latvia for the consistency achieved between its inventories.

Accuracy and uncertainties

21.   Latvia has compiled uncertainty estimates for the main pollutants CO, NMVOC, NO_X, NH_3 and SO_2 using tier 1 methodology. The ERT commends Latvia for providing the uncertainty analysis, and recommends that Latvia includes more pollutants in future submissions.

22.   The ERT also notes that there are additional uncertainties in the inventory through emissions currently reported as not estimated (NE), as discussed under the "Completeness" sector of this report. The ERT recommends that Latvia assesses the impact of the not estimated (NE) emissions on the uncertainties and includes the identified emissions in its inventory.

Verification and quality assurance/quality control approaches

23.   Latvia has developed and implemented quality assurance/quality control (QA/QC) measures including general QC procedures. According to the IIR, quality assurance activities are in place with peer reviews, and the inventory is officially approved before submission. The ERT commends the Party on its QA/QC activities.

24.   The ERT recommends that Latvia improves the current descriptions of the QA/QC activities by adding further details on QA/QC work for key categories and for those individual categories in which significant methodological and/or data revisions have occurred, and by providing examples of such activities under the relevant sub-chapters. The ERT also recommends that Latvia improves quality control for the time series to ensure consistency with the energy balance and recommends strengthening the cooperation between providers of the energy balance and inventory compilers.

FOLLOW-UP TO PREVIOUS REVIEWS

25.   Latvia provided detailed responses to the questions identified in the Stage 2 review for their submissions in 2008, 2010 and 2013.

26.   The ERT notes that the Party has carried out most of the recommendations made by the previous ERT in 2009, although further work is still needed in the agriculture sector as indicated below. The ERT commends Latvia for the work already carried out.

AREAS FOR IMPROVEMENT IDENTIFIED BY LATVIA

27.   Latvia has identified the following improvement needs in the IIR:

   (a)   Use of plant-specific data and improvement of activity data in the energy sector

   (b)   Improvement of activity data in the transport sector

   (c)   Launching projects to check pulp and paper and cement industry inventories

(d)   Further work on volatility rates (i.e. emission factors) of NMVOCs and improvement of activity data in the solvent and other product use sectors

PART B: RECOMMENDATIONS FOR IMPROVEMENTS TO THE PARTY

CROSS-CUTTING IMPROVEMENTS IDENTIFIED BY THE ERT

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

   (a)   Use the results of the KCA for prioritising of improvements, and add the KCA for the base years of the pollutants in the IIR

   (b)   Explore possibilities to allocate emissions currently reported as included elsewhere under their proper NFR category

   (c)   Include emissions currently reported as not estimated in the inventory

   (d)   Consider extending the uncertainty analysis to cover all pollutants

   (e)   Provide more details on QA/QC activities in the IIR

SECTOR SPECIFIC RECOMMENDATIONS FOR IMPROVEMENTS IDENTIFIED BY ERT

ENERGY

Review Scope

Pollutants Reviewed		All		
Years		1990 – 2011		
NFR Code	**CRF_NFR Name**	**Reviewed**	**Not Reviewed**	**Recommendation Provided**
1.A.1.a	public electricity and heat production	x		
1.A.1.b	petroleum refining	x		
1.A.1.c	Manufacture of solid fuels and other energy industries	x		
1.A.2.a	iron and steel	x		
1.A.2.b	non-ferrous metals	x		
1.A.2.c	chemicals	x		
1.A.2.d	pulp, paper and print	x		
1.A.2.e	food processing, beverages and tobacco	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		
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		
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		
1.A.5.b	other, mobile (including military, land based and recreational boats)?			
1.B.1.a	coal mining and handling	x		
1.B.1.b	solid fuel transformation	x		
1.B.1.c	other fugitive emissions from solid fuels)	x		
1 B 2 a i	Exploration, production, transport	x		
1 B 2 a iv	Refining / storage	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		
1 B 3	Other fugitive emissions from geothermal energy production , peat and other energy extraction not included in 1 B 2	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:

29.   Latvia's report on emissions from the energy sector is generally transparent. The ERT commends Latvia for the documentation of emission factors used in the Annex to the IIR. However, the ERT notes that the emission factors presented in the Annex are not properly referenced. In response to questions raised during the review Latvia provided references for all the emission factors used. The ERT recommends that Latvia includes the references for the emission factors used in the IIR in future submissions.

Completeness:

30.   The inventory of Latvia is generally complete in terms of the source categories and pollutants covered. The notation key NE is only used for pollutants where there are no default emission factors in the EMEP/EEA Guidebook. The ERT commends Latvia for the high degree of completeness of the energy sector emission inventory. The ERT notes that the emission estimates for fugitive emissions from natural gas and emission estimates from municipal waste incineration might not be complete. This is documented in the list of sector-specific recommendations.

Consistency including recalculation and time series:

31.   The ERT notes that Latvia in chapter 9 of the IIR transparently reports on the recalculations carried out and provides an overview of the total quantitative impact. The ERT commends Latvia for its transparent report on recalculations.

Comparability:

32.   During the review the ERT noted that emissions from coal mining and handling were reported under 1B1c instead of category 1B1a as required by the EMEP/EEA Guidebook. In response to a question raised during the review, Latvia explained that the allocation had been made so as to be consistent with UNFCCC reporting, but acknowledged at the same time that the allocation was incorrect. The ERT recommends that Latvia reallocates emissions from coal mining and handling in its next submission.

Accuracy and uncertainties:

33.   Latvia prepared a Tier 1 uncertainty estimate for the main pollutants. The ERT encourages Latvia to expand the uncertainty analysis to cover other pollutants, e.g. particulate matter. Furthermore, the ERT encourages Latvia to utilise the results of the uncertainty analysis in conjunction with the key category analysis to prioritise improvements to the inventory.

Improvement:

34.   Latvia reported several planned improvements to the inventory for stationary combustion in the IIR, including the possibility of using more plant-specific information in the inventory. The ERT agrees that the planned improvements will

result in a higher accuracy of the emission inventory and encourages Latvia to continue with its efforts to implement these improvements.

Sub-sector Specific Recommendations.

Category issue 1: 1A: Stationary combustion – SO$_2$

35.   The ERT notes that the sulphur content for diesel does not seem to comply with the EU regulations set out in Directive 2009/30/EC for the latest years. In response to a question raised, Latvia informed the ERT that there are still organisations which use diesel fuel which is not in compliance with the law and therefore the values exceed the limits in 2009-2011. Latvia further informed the ERT that the issue had been forwarded to the Ministry of Environmental Protection and Regional Development. The ERT recommends that Latvia continues to monitor the sulphur content of fuels and if the average values do not comply with the respective legislation then this should be explained in the Informative Inventory Report.

Category issue 2: 1A: Stationary combustion – SO$_2$

36.   In the Annex to the IIR, Latvia presents the SO$_2$ EFs used in the inventory. Given the data, it seems that only the sulphur content is taken into account when deriving the EFs and no influence of abatement. In response to a question raised by the ERT, Latvia explained that for some fuels abatement was taken into account based on judgements by local energy experts. Abatement efficiencies were assumed to be 2%, 10% and 15% for residual fuel oil, coal/coke/oil shale and peat respectively. The ERT considers these abatement efficiencies very low, since the typical abatement efficiency for e.g. a wet scrubber is above 90%. The ERT recommends that Latvia investigates the extent and efficiencies of flue gas desulphurisation for power plants and large industrial plants.

Category issue 3: 1A2f: Other stationary combustion in manufacturing industries – All pollutants

37.   During the review the ERT noted that the sulphur content for oil shale is highly variable throughout the time series. In response to a question raised by the ERT, Latvia explained that the sulphur content was reported directly by plants using oil shale. However, Latvia also informed the ERT that a small amount of oil shale used in other manufacturing industries in 1990 had been omitted from the inventory. The ERT recommends that Latvia includes this amount of oil shale in its next submission.

Category issue 4: 1A2f: Other stationary combustion in manufacturing industries – All pollutants

38.   During the review the ERT noted that the IIR states that emissions from municipal waste combustion are not estimated due to a lack of emission factors. The ERT notes that there are emission factors available in chapter 6Cc of the EMEP/EEA Guidebook. In response to a question raised during the review, Latvia informed the ERT that emissions would be calculated using the default emission factors from the

EMEP/EEA Guidebook for the next submission. The ERT acknowledges this planned improvement and recommends that Latvia implements it in the next submission.

Category issue 5: 1A4bi: Residential: Stationary plants – All pollutants

39.   During the review, the ERT considered the documentation of emission factors for residential wood combustion not transparent. In response to a question raised by the ERT, Latvia provided the emission factors and the references used. The ERT recommends that Latvia includes this information in the next IIR.

Category issue 6: 1B2av: Distribution of oil products – NMVOC

40.   During the review the ERT noted that the IIR states that emissions from gasoline distribution were only calculated for the time period 1990-2001. In response to a question raised by the ERT, Latvia explained that emissions from gasoline distribution were calculated using three different methodologies during the time series. For 1990-1999 emissions are calculated using expert judgement, for 2000-2001 emissions are estimated using the Tier 1 default emission factor, whereas emissions from 2002 onwards have been reported directly by operators. The ERT recommends that this explanation is included in the IIR and that the issue of time series consistency is discussed in more detail in the IIR for this sector.

Category issue 7: 1B2b: Natural gas: NOx, CO and NMVOC

41.   During the review, the ERT noted that Latvia only reports fugitive emissions of NOx and CO from natural gas for the years 2001, 2002 and 2004 only. In response to a question raised during the review, Latvia informed the ERT that the data were provided directly from the natural gas company. The ERT notes that it is unusual to have fugitive emissions of NOx from natural gas systems and equally unusual not to have emissions of NMVOC from natural gas systems. Furthermore, the ERT notes that Latvia reports fugitive emissions of CH_4 to the UNFCCC from natural gas transmission, distribution and other leakage. Therefore, it is relevant to estimate NMVOC emissions. The ERT recommends that Latvia estimates and reports NMVOC emissions from natural gas transmission, distribution and other leakage. Furthermore, the ERT recommends that Latvia provides further information regarding emissions of NOx and CO, and explains why these emissions only occurred in three years.

TRANSPORT

Review Scope

Pollutants Reviewed		Main pollutants, particulate matter, HM and CO		
Years		1990 – 2011		
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	
1.A.3.a.ii.(i)	civil aviation (domestic, LTO)	x		x
1.A.3.a.ii.(ii)	civil aviation (domestic, cruise)		x	
1.A.3.b.i	road transport, passenger cars	x		x
1.A.3.b.ii	road transport, light duty vehicles	x		x
1.A.3.b.iii	road transport, heavy duty vehicles	x		x
1.A.3.b.iv	road transport, mopeds & motorcycles	x		x
1.A.3.b.v	road transport, gasoline evaporation	x		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		
1.A.3.d.i (ii)	international inland navigation		x	
1.A.3.d.ii	national navigation	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		
1.A.5.b	other, mobile (including military, land based and recreational boats)	x		
1 A 3 d i (i)	International maritime navigation		x	
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 reviewed and which have not in the respective columns.				

General recommendations on cross-cutting issues.

42.   The Latvian emission inventory for mobile sources is of good quality, transparent and complete. The ERT has made some recommendations and observations which are elaborated below. The ERT would like to thank Latvia for providing thorough answers and quick responses during the review week.

Transparency:

43.   The Latvian inventory is transparent, with good method descriptions and presentations of the activity data and emission factors used in the IIR. documentation could be further improved in some areas. The ERT has made some sector-specific recommendations in this respect (category issues 1-3).

44.   Within the mobile sources category there is a limited use of the notation key "included elsewhere". The only exception is in road transport, where all reported POPs are reported collectively under passenger cars (1A3bi).

45.   The description of trends would benefit from some more details to explain the large dips and jumps which occur for specific sources. For example, during the review, the ERT asked questions regarding the high emissions from mobile combustion in agriculture (1A4c ii) in 1990, and a sudden drop in jet kerosene consumption in aviation in 2009. Latvia provided information that after the crisis in 1991 and due to the changes in the national economy, collective farms were abandoned and dismantled, which is why gasoline consumption in agricultural sector decreased by 91.9 per cent in 1990-1991, and that the state owned (99.8 per cent of all shares) Latvian airline company aborted domestic commercial flights in year 2009. The ERT encourages Latvia to include this type of information in the trend descriptions of the IIR in order to increase transparency.

Completeness:

46.   The Latvian inventory is complete for the most important mobile emission sources, with only a few emissions not estimated (reported as NE). However, some sources are missing. This is especially the case for ammonia and TSP. In addition, heavy metal emissions appear to have been reported incompletely (e.g. Pb emissions from national navigation), and the ERT encourages Latvia to check the 2009 Guidebook for default emission factors that can be used for calculating heavy metal emissions from the missing mobile sources. The ERT has made some specific recommendations concerning completeness (see category issues 4-6 below).

Consistency including recalculation and time series:

47.   The Latvian inventory is generally consistent over time. There are some changes in the data sources that may affect time series consistency, for instance in fuel consumption for national navigation between 2005 and 2006. The ERT encourages Latvia to examine the time series whenever there are changes in data availability and to ensure time series consistency. The ERT has made some specific recommendations concerning consistency (category issue 7).

48.   During the review, Latvia informed the ERT that, in order to ensure time series consistency , recalculations of all emissions from road transport were performed with the same model/methodology (COPERT IV model) in 2011. The ERT commends Latvia for this effort to ensure time series consistency.

Comparability:

49.   The Latvian emission estimates are for the most part in accordance with the Guidebook, and comparable to the emission estimates of other countries. The ERT has made one specific recommendation, see category issue 8 below.

Accuracy and uncertainties:

50.   A quantitative uncertainty analysis has been provided in Annex 4 to the IIR. The calculated uncertainty for some of the mobile sources is relatively high. The ERT encourages Latvia to use the uncertainty analysis to pinpoint important areas for improvement.

51.   The ERT recommends that the QC procedures are strengthened in order to ensure good quality input data (see category issue 7).

Improvement:

52.   The IIR contains information on planned inventory improvements. For mobile sources, one planned improvement has been mentioned: To carry out a study for revising activity data on railway transport and implement the Tier 2 method in 2012. The ERT commends Latvia for providing an improvement plan, and encourages Latvia to use this review report to expand the list of planned improvements. The quantitative uncertainty analysis and key source analysis shall be used to prioritise these improvements.

Sub-sector Specific Recommendations.

Category issue 1: 1A2f ii, 1A4a ii, 1A4b ii, 1A4c ii - All pollutants

53.   The ERT notes that the descriptions for the mobile sources 1A2f ii, 1A4a ii, 1A4b ii, and 1A4c ii are included in the chapter on stationary sources in the IIR. The ERT understands the rationale for this allocation, as the sources are closely related to other sources in 1A2, 1A4a and 1A4b. However, the ERT suggests that, in order to increase transparency, a short section concerning these sources should be included in the chapter on mobile emissions in the IIR, with a reference to the corresponding paragraphs in the stationary chapter.

Category issue 2: 1A3b i-iv – All pollutants

54.   During the review, the ERT noted that the input data for COPERT was not thoroughly described in the IIR.   Latvia provided information about the input data during the review, and the input data appears to be of good quality. The ERT encourages Latvia to include more detailed information about the input data for Copert IV in their next IIR.

Category issue 3: 1A3a ii (i) and 1A3a i (i) – All pollutants

55.   The IIR does not provide information on which data were used for the Tier 1 and 2 methods (used for calculating emissions from aviation) apart from fuel consumption. During the review, Latvia provided information that the number of LTOs for domestic and international aviation is provided separately. The ERT encourages Latvia to provide a more detailed description of the data sources, emission factors and methodologies used for calculating emissions from aviation in the IIR.

Category issue 4: 1A2f ii, 1A4a ii, 1A4b ii, 1A4c ii - NH$_3$

56.   Ammonia emissions in 1A2f ii, 1A4a ii and 1A4b ii are reported as NE, and in 1A4c ii it is reported as NO. Tier 1 emission factors are provided in the 2009 Guidebook for both diesel and gasoline. During the review, Latvia informed the ERT that the emissions would be reported in the 2014 submission. The ERT encourages Latvia to include these emissions, and thanks Latvia for its willingness to make NH$_3$ emission estimates more complete.

Category issue 5: 1A3b i-iv - TSP

57.   TSP emissions from road transport are reported as NA. This is not in accordance with the 2009 Guidebook, which provides emission factors for these emissions. During the review Latvia informed the ERT that the use of NA was a mistake, and that TSP will be reported equal to PM_{10}. The ERT welcomes Latvia's plan to include TSP emissions from road transport in its 2014 submission.

Category issue 6: 1A3b v - NMVOC

58.   In the NFR tables, NMVOC emissions from gasoline evaporation are reported as NE. Copert IV provides tools for calculating these emissions. During the review, Latvia informed the ERT that it is planned to calculate NMVOC emissions from gasoline evaporation with the 8.0 version of COPERT for the time period 1990-2011 in the next submission to ensure consistency of the time series. The ERT thanks Latvia for providing this information, and recommends that these emissions are calculated and reported in the next submission.

Category issue 7: 1A4a ii – All pollutants

59.   During the review, the ERT noted that the emissions of all pollutants from this source were high in 2006 compared to the years before and after, and missing in 1995. Latvia informed the ERT that the missing emissions of 1995 were correct according to the annual questionnaires, while the high level in 2006 was due to an error when copying the data into datasheets, and that the emissions in 2006 should be the same as in 2005 and 2007. The ERT welcomes the inclusion of this correction in the next submission, and encourages Latvia to evaluate their QC routines in order to ensure that this type of error is minimised.

Category issue 8: 1A2f ii, 1A4a ii, 1A4b ii and 1A4c ii – All pollutants

60.   Latvia uses fuel types to separate mobile emissions from these sources from the corresponding stationary sources, putting diesel consumption under stationary and gasoline under mobile combustion. This is not in accordance with the 2009 Guidebook, which states that "where no other data are available, it should be assumed that all gasoline and diesel-fuel consumption for the NFR categories in this chapter is for off-road machinery". The ERT asked Latvia whether additional information, such as surveys and industry data had been considered when separating mobile energy use in these sources from the corresponding stationary energy use. Latvia responded that this would be considered, and, if not possible, the Guidebook's recommendations on allocation would be taken into account. The ERT encourages Latvia to examine possible data sources for a more precise allocation of energy sources to stationary and mobile machinery, and, if no such data can be found, welcomes the use of the Guidebook's recommendation on allocation.

INDUSTRIAL PROCESSES

Review Scope

NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendation Provided
Pollutants Reviewed		NOx, NMVOC, SOx, NH$_3$, PM$_{2.5}$, PM$_{10}$, TSP, CO, Cd, Hg, Pb, POPs		
Years		1990 – 2011		
2.A.1	cement production	x		x
2.A.2	lime production	x		x
2.A.3	limestone and dolomite use	x		x
2.A.4	soda ash production and use	x		x
2.A.5	asphalt roofing	x		x
2.A.6	road paving with asphalt	x		x
2.A.7.a	Quarrying and mining of minerals other than coal	x		x
2.A.7.b	Construction and demolition	x		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.B.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
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	
2.C.1	iron and steel production	x		x
2.C.2	ferroalloys production		x	
2.C.3	aluminium production		x	
2.C.5.a	Copper Production		x	
2.C.5.b	Lead Production		x	
2.C.5.c	Nickel Production		x	
2.C.5.d	Zinc Production		x	
2.C.5.e	Other metal production (Please specify the sources included/excluded in the notes column to the right)		x	
2.C.5.f	Storage, handling and transport of metal products (Please specify the sources included/excluded in the notes column to the right)		x	
2.D.1	pulp and paper		x	
2.D.2	food and drink	x		x
2.D.3	Wood processing	x		x
2.E	production of POPs	x		x
2.F	consumption of HM and POPs (e,g. Electrical and scientific equipment)	x		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:

61.   The Latvian industrial processes inventory is generally transparent, well organised, and comprehensive with a good level of detail in its methodology descriptions.

62.   In the previous Stage 3 Review Report (from 2009) the ERT encouraged Latvia to include paragraphs about recalculations and planned improvements in the industrial processes chapter in its next submission. The ERT noted that Latvia included all the sectors in separate sections of the chapter "Recalculations and Planned Improvements" and compliments Latvia on this.

63.   In addition, the previous Stage 3 Review Report noted that it was not clear which sectors (sub-sectors) were not occurring, not estimated and negligible in Latvia. The ERT recommended that Latvia should make this clear in its next submission. The ERT notes that it is still not clear and reiterates its recommendation to make it clear in the next submission. Furthermore, the ERT notes that in the NFR tables, the notation key "NO" has been used several times in the activity cell and "NA" in a number of pollutant cells with the same NFR code. The ERT recommends that Latvia uses the notation key "NA" where the source exists but relevant emissions are considered not to occur and "NO" where sources do not occur.

64.   The ERT notes that explanations for dips/jumps or other changes in the emission time series of all sub-sectors of the industrial processes sector are described very clearly.

65.   Explanations for the use of the notation key "NE" are not provided for every sector/pollutant combination, neither in the IIR nor in the NFR tables. Additional details and specific recommendations are included below.

Completeness:

66.   In the previous Stage 3 Review Report the ERT noted that Latvia had not included the chemical industry in its industrial process inventory. Latvia informed the ERT that they would include it in their next submission. The ERT notes that Latvia has done this, although only partly. Additional details and specific recommendations are given in the section on sector-specific recommendations below.

67.   To avoid under-estimates, the ERT recommends that Latvia includes plans to address the missing emissions (NE) in its IIR, either by obtaining data allowing an emission estimate to be made, or by reporting the emissions as not applicable.

Consistency including recalculation and time series:

68.   The ERT notes that Latvia has not performed recalculations for any of the source categories within the industrial processes sector. The ERT found no discrepancies between the 2010 and 2011 emissions time series for the various emission sources. The ERT notes that both the time series for the activity data and the EFs used to calculate emissions of the key source are consistent.

Comparability:

69.   Latvia has reported its emissions inventory in accordance with the reporting requirements and submitted it in the requested NFR format. Furthermore, the ERT notes that there are no differences between CLRTAP and NEC emissions.

Accuracy and uncertainties:

70.   In the previous Stage 3 Review Report, the ERT encouraged Latvia to include sector-specific QA/QC paragraphs in its next submission. This would have provided much more transparency. Up to now, this has not been done. To provide much more transparency, the ERT encourages Latvia to include sector-specific QA/QC paragraphs in the future.

71.   In the previous Stage 3 Review Report, the ERT encouraged Latvia to include an uncertainty analysis in the industrial processes chapter. This would help to support the continuous improvement process, and to provide an indication of the reliability of the inventory data. The ERT notes that Latvia has performed an uncertainty analysis for all the sectors, including industrial processes, and commends Latvia for this.

Improvement:

72.   In the previous Stage 3 Review Report, the ERT encouraged Latvia to find out if it was possible to use plant-specific data from the national database "2-AIR". The ERT notes that the NMVOC emissions from glass production have now been obtained from the national database "2-AIR" where glass production companies report their NMVOC emissions. The ERT encourages Latvia to continue with the use of the national database "2-AIR".

73.   In the previous Stage 3 Review Report the ERT encouraged Latvia to switch from the Tier 1 to the Tier 3 methodology for 2C1 in its next submission. The ERT notes that this change has been made and recommends that Latvia updates the corresponding documentation in the IIR. Additional details and specific recommendations are given below.

74.   The ERT noted that Latvia included some planned improvements for the Industrial Processes sector in the IIR 2013. Additional details and specific recommendations are given below.

Sub-sector Specific Recommendations.

Category issue 1: Several source categories - All Pollutants

75.   The reasons for the use of the notation key NE for 2A1, 2A2 and 2D3 are explained in Table 1.2 (IIR, page 13) and in the additional info sheet of the NFR table. Some pollutants are missing in Table 1.2. In the NFR tables the notation key NE also has been used for the following sector/pollutant combinations:

- 2A3, 2A4 [TSP, PM_{10}, $PM_{2.5}$]
- 2A5 [PM_{10}, $PM_{2.5}$, Pb, Cd, Hg, PAH's and HCB];
- 2A6 [CO and PAH's];
- 2A7a, 2A7b, 2A7c [TSP, PM_{10}, $PM_{2.5}$];
- 2A7d [PAH's];
- 2D1 [PAH's(except benzo(a)pyrene) and HCB];
- 2D2 [TSP, PM_{10}, $PM_{2.5}$].

76.   During the review, Latvia explained that the notation key "NE" for the above mentioned sectors and pollutants had been used due to no methodology available according to EMEP 2009. By mistake, these explanations are not provided in Table 1.2. The ERT recommends that Latvia gives a reason for all NEs used in its next submission.

Category issue 2: 2A4 – NOx and SO$_2$

77.   For the next inventory report, it is planned to take into account data on NOx and SO_2 emissions of cement production as provided by producers in their annual report from the national database "2-AIR". Due to innovations of cement production technology in 2009-2011, NOx and SO_2 emissions are now measured automatically on the site of the new plant. The ERT encourages Latvia to carry out this improvement.

Category issue 3: 2B - All Pollutants

78.   In the previous Stage 3 Review Report, the ERT noted that Latvia had not included the chemical industry in its industrial process inventory. The chemical industry in Latvia is the seventh largest industry and mostly consists of the medicine preparation (drugs) and production industry and paint and varnish manufacture. Latvia informed the ERT that they would include the chemical industry in their next submission.

79.   The ERT notes that Latvia only included part of 2B, namely phosphate fertiliser production, in the current submission. The ERT recommends that the other sub-categories of 2B (e.g. fine chemicals and pharmaceuticals) are included in the next submission too.

80.   The ERT also notes that the IIR states on page 74: "Particulate matter emissions from phosphate fertilisers were estimated and reported in the 2B5 sector but only for the period 2008-2011 as activity data for other years are not available".

When consulted, Latvia responded that they would consider the possibility to obtain activity data for other years from other resources or go through extrapolation to determine the missing years and complete the time series years 1990-2011. The ERT commends Latvia for this.

Category issue 4: 2C1 - All Pollutants

81.   In the previous Stage 3 Review Report, the ERT noted that Latvia would be able to obtain more accurate and complete activity data and emission factors from the only steel producer in Latvia who participates in the EU ETS. Because iron and steel production is an important key source in the industrial processes sector, the ERT has encouraged Latvia to switch to the Tier 3 methodology for this source in its next submission.

82.   According to Latvia's 2013 IIR (page 76, 4.3.3) the Tier 1 approach is still being used to calculate CLRTAP emissions from key source 2C1 (steel production). When consulted, Latvia responded that they were using the Tier 2 methodology because there were activity data based on total production volumes reported by the steel producer and that it was known that steel was produced in open-hearth furnaces. Emission factors for calculating emissions were taken from the EMEP/EEA Emission Inventory Guidebook 2009, Table 3.14 because there no emission factors had been provided by the steel producer.

83.   The statement on page 76 (that the Tier 1 approach is still being used to calculate CLRTAP emissions from key-source 2C1) is not correct in this case. The ERT recommends that Latvia includes the correct description in its next submission.

Category issue 5: 2D3 - All Pollutants

84.   For its next submission, Latvia plans to conduct research on the pulp and paper sector as there are two producers reporting activity data under the PRODCOM code 17.11.14.00.00 – manufacture of pulp. It is as yet not known if the pulp is produced in the country or if all raw materials are imported and then mixed together in Latvia. The ERT commends Latvia for this planned improvement.

SOLVENTS

Review Scope

Pollutants Reviewed	NMVOC		
Years	1990 – 2011		
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	
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		
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:

85.   The ERT commends Latvia for the detailed description of the methodology used and for explaining the changes in the time series in its IIR. Nevertheless, the ERT encourages Latvia to make improvements by giving information about how many NMVOCs are reported in Latvia's Chemical Registry and how it is determined if a specific substance is a NMVOC or not, i.e. what kind of NMVOC definition is used.

86.   The ERT further notes that it is not clear what kinds of activities are included in NFR sector 3.D.3 – other product use.

87.   The ERT recommends that Latvia describes more thoroughly what kind of data is collected in the Chemical Register and then used for the air emissions inventory. Following the review, Latvia explained that the Chemical Register includes the amounts of chemicals (imported and produced, in tonnes) containing NMVOCs, together with the information about the solvent content in percent, NACE code, trade name, chemical name, CAS number and the concentration of a particular substance in the chemical. The ERT encourages Latvia to include this information in its next IIR.

Completeness:

88.   The ERT recommends that Latvia calculates the other emissions for the solvent sub-sectors 3.C and 3.D, besides NMVOC, for which emission factors are given in the EMEP/CORINAIR Guidebook 2009.

Consistency including recalculation and time series:

89.   Looking at the time series, the ERT notes that Latvia's inventory can be divided into two parts: the period before the year 2002 and the period after that. The first part of the inventory is calculated using activity data from expert judgment (NFR 3.A) or the Tier 1 methodology where the activity data used is the population data (NFR 3.B and 3.D). For the second part, Latvia uses the data from the Chemical Register and also from the "2-AIR" database for NFR 3.C (since 1997). This means that Latvia uses two different methodologies in the time series, which might makes these two parts inconsistent. Latvia states that it is not possible to recalculate historical emissions using the latest methodology due to unavailable data which would be needed for Tier 3 methodology. The ERT acknowledges that, but still encourages Latvia to check for possible inconsistencies and provide some information in its IIR.

Comparability:

90.   The ERT notes that the methods used in the Latvian solvents inventory are consistent with those proposed in the EMEP/CORINAIR Guidebook 2009. They are described transparently in the IIR. At the same time, the ERT finds that the use of quite different methodologies in different parts of the 3.A, 3.B.1, 3.D.1 and 3.D.2 sector time series limits the comparability of the results with those of other Parties.

Accuracy and uncertainties:

91.   Latvia uses the Tier 1 methodology presented by the IPCC GPG 2000 to estimate uncertainties for all the solvent sub-sectors. Uncertainty coefficients have been assigned, based on expert judgement or default uncertainty estimates according to IPCC GPG 2000 and the EMEP/CORINAIR Guidebook 2009, because there is a lack of information about the background data needed to make the actual calculations. The ERT recognises Latvia's efforts to assess the uncertainties in the solvent sector of their inventory.

92.   Latvia describes its implemented QA/QC processes in its IIR. Nevertheless, the ERT found some errors in the IIR and in the Annex IV Excel spreadsheets. Latvia noted that the mistakes have occurred because of the data transfer from one database to another and some overwriting errors. Latvia stated that these mistakes would be corrected in the next submission. The ERT encourages Latvia to make improvements in their QA/QC procedures to avoid these mistakes from happening again in the future.

Improvement:

93.   The ERT notes Latvia's intention to improve their inventory, with the preparation of a full list of products that could be allocated to printing, domestic solvents and other solvents use for better data aggregation in the NFR sector 3.D.

94.   Latvia assumes that 100% of all NMVOCs contained in used products in a particular year are emitted during the application process. This indicates that the NMVOC emissions might be over-estimated, since abatement technologies are not taken into account, nor is the amount of NMVOCs not emitted and staying in the product, or the waste solvent that is destroyed by such technologies. Latvia has

stated its commitment in the IIR to make an appropriate estimate and the ERT approves of this commitment.

Sub-sector Specific Recommendations.

Category issue 1: 3.A. Paint application – NMVOC

95.   The ERT wishes to point out that the NFR sectors 3.A.1 and 3.A.2 are classified as 'decorative coating application' and 'industrial coating application'. This means that Latvia's approach of presenting the data for these sectors, 3.A.1 for water based paints and 3.A.2 for solvent-based paints for the period of 1990-2001 is not entirely correct, because it is very unlikely that, in the 1990s, only water-based paint was used in decorative coating applications. The ERT suggests that if appropriate data is not available in these sectors for that period, then Latvia should present the data only in the NFR sector 3.A.1, as it is done for the period from 2002 to 2011.

Category issue 2: 3.B. Degreasing and dry cleaning - NMVOC

96.   The ERT encourages Latvia to calculate and report emissions for the NFR sector 3.B.2. If there is no appropriate country-specific methodology available, then the ERT recommends that the EMEP/CORINAIR Guidebook 2009 default methodology should be used for that sector. The ERT recommends that Latvia checks its reported notation keys (NOs) for the activity data in the NFR sector 3.B.2 for the period 2005-2011.

Category issue 3: 3.C. Chemical products - NMVOC

97.   Latvia reports NMVOC emissions in the NFR sector 3.C only for the year 1997, because the "2-AIR" database delivers only data from 1997 onwards. The ERT encourages Latvia also to report emissions for the years prior to 1997. This will require a different data source, so that data before 1997 can be obtained.

Category issue 4: 3.D. Other product use – NMVOC and other pollutants

98.   The ERT encourages Latvia to include emissions from the use of tobacco in the NFR sector 3.D.3 of the inventory. The appropriate methodology can be found in the EMEP/CORINAIR Guidebook 2009.

AGRICULTURE

Review Scope:

NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendation Provided
Pollutants Reviewed		NH₃, PM₂.₅, PM₁₀, TSP		
Years		1990 – 2011		
4 B 1 a	Cattle dairy	x		x
4 B 1 b	Cattle non-dairy	x		
4 B 2	Buffalo	x		
4 B 3	Sheep	x		
4 B 4	Goats	x		
4 B 6	Horses	x		
4 B 7	Mules and asses	x		
4 B 8	Swine	x		
4 B 9 a	Laying hens	x		
4 B 9 b	Broilers	x		
4 B 9 c	Turkeys	x		
4 B 9 d	Other poultry	x		
4 B 13	4 B 13 Other	x		
4 D 1 a	Synthetic N fertilisers	x		x
4 D 2 a	Farm-level agricultural operations including storage, handling and transport of agricultural products	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:

99.   The ERT notes that Latvia has included additional information on methodologies, activity data and parameters used in its 2013 IIR, but reiterates the need to further increase transparency by describing methodologies in more detail and including clear references.

Completeness:

100.   Latvia's inventory is complete with respect to ammonia emissions. Latvia reports "NA" for the following sources, although methodologies are provided in the EMEP/EEA Guidebook:

- NO$_X$: 4.B, 4.D.1.a, 4.F

- SO$_X$: 4.F
- PM: 4.D.2.a, 4.F
- HM and POPs: 4.F

101.   PM$_{2.5}$, PM$_{10}$, and TSP emissions have been estimated for cattle, swine and poultry for the years 2000 to 2011. For horses, emissions of PM2.5 and PM10 are estimated. The ERT encourages Latvia to continuously improve the completeness of its agriculture inventory by estimating the sources mentioned above, and recommends that Latvia applies the correct notation keys.

Consistency including recalculation and time series:

102.   Latvia reports consistent emissions under LRTAP and NEC.

Comparability:

103.   Latvia uses a Tier 2 methodology for estimating NH$_3$ emissions from manure management (key sources 4.B.1.a, 4.B.1.b, 4.B.8, 4.B.9.a). For sector 4.D.1.a Synthetic fertilisers, a key source for NH$_3$, Latvia uses the default IPCC volatilisation rate of 10% from 1990 to 2009, which is not in line with the EMEP/EEA 2009 Guidebook (see specific recommendation below).

Accuracy and uncertainties:

104.   Latvia provides a quantitative uncertainty analysis for the main pollutants (NOx, CO, NMVOC, SOx and NH$_3$) and all relevant sources in the agriculture sector. The calculation has been made according to the Tier 1 method of the IPCC GPG 2000, resulting in a high level of uncertainty. The ERT encourages Latvia to continuously decrease the uncertainty of its estimates by making further efforts to develop robust country-specific parameters.

Improvement:

105.   The ERT commends Latvia for improving the documentation contained in its IIR. For the agriculture sector, no planned improvements are specified in the IIR.

Sub-sector Specific Recommendations.

Category issue 1: 4.B.1.a Dairy – NH$_3$

106.   The NH$_3$ implied EF for dairy cattle (21.53kg NH$_3$ in 2011) is very low compared to the default value of 39.3 kg/a for slurry systems and 28.7kg for solid systems. Additionally, the IEF has slightly decreased due to a slightly decreasing N excretion rate: Up to 2004 the national N excretion rate was 71kg (Table 6.1. of IIR 2013), and since 2005 Latvia has applied a nitrogen excretion value of 70kg per year for dairy cattle. This value is the same as the low IPCC default value for Eastern Europe but referenced with national studies, e.g. the "Agrochemical Research Centre". The decreasing trend in N excretion is unusual, as normally EU accession goes along with increasing milk yields. The ERT recommends that Latvia explains this unusual trend of national N excretion values during 1990-2011 (including the

time series for milk yields per cow) in more detail or applies the EMEP/EEA default value of 105 kg Nex per year in its next annual submission.

Category issue 2: 4.B. Manure Management – NH$_3$

107.   Methodologies and the parameters used for the calculation of NH$_3$ emissions from the sector "Manure Management" are not clearly documented in the Latvian IIR. In response to a corresponding question raised by the ERT, no clear reference was given. The ERT assumes that a mix of default and national values has been used following the detailed methodology presented in the EMEP/CORINAIR Guidebook 2007. In the IIR 2013, no information is given on animal waste management system distribution. In response to a question from the ERT, Latvia provided a table of the AWMS distribution of dairy cattle showing that in 2011 about 50% of the cattle were held in solid systems and that about 20% of cattle were on pastures. Latvia explained that the AWMS distribution data used in the inventory was based on the judgment of experts from the Latvia University of Agriculture. The ERT recommends that Latvia provides more documentation on the methodologies, parameters and emission factors applied, including clear references.

Category issue 3: 4.D.1.a Synthetic N-fertilisers – NH$_3$

108.   Up to 2009 the IPCC default volatilisation rate of 10% was used as emission factor, and for 2010 NH$_3$ emissions were calculated on the basis of fertiliser type and the emission factors provided in the EMEP/EEA Guidebook 2007. The emission factor of 10% is higher than the default Tier 1 emission factor of 0.084 kg NH$_3$/kg N from the EMEP/EEA Guidebook 2009 and much higher than the Latvian implied emission factor for 2010 of 0,036 kg NH$_3$/kg N. The ERT recommends that Latvia establishes a consistent time series and does not apply the 10% volatilisation rate. In the EMEP/EEA Guidebook 2009, chapter 4, basic methods and principles are provided. In a response to a question from the ERT, Latvia provided activity data in detail by fertiliser type for 2008-2011. The ERT recommends that Latvia includes this information in its next IIR.

WASTE

Review Scope:

NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendation Provided
Pollutants Reviewed		All		
Years		1990 – 2011		
6.A	solid waste disposal on land	x		
6.B	waste-water handling	x		
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		
6 C d	Cremation	x		
6 C e	Small scale waste burning	x		
6.D	other waste (e)	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.

109.   The ERT commends Latvia for the many improvements performed since the previous review. In general, the Latvian Informative Inventory Report and the data delivered show that Latvia has done good and solid work.

Transparency:

110.   The ERT commends Latvia for the transparency of the Informative Inventory Report (methodological description, activity data and EFs are provided). To further improve the transparency of the report, the ERT encourages Latvia to include explanations for the categories that are not included (e.g. 6Ce and 6D) or to make a suitable reference in the IIR waste chapter to draw the reader's attention to Table 1.2.

Completeness:

111.   The ERT commends Latvia for including emissions from solid waste disposal on land and wastewater treatment.

112.   The ERT recommends that Latvia reviews the waste sector with a focus on missing sources. Where methodologies and default emission factors are available in the EMEP/EEA Guidebook (e.g. sludge spreading, compost production, biogas production), emission estimates should be reported. If sources are not included, the ERT recommends that Latvia indicates the reasons for their exclusion in the IIR.

Consistency, including recalculation and time series:

113.   The ERT considers the report and the reported data to be consistent.

Comparability:

114.   The ERT considers the report and the reported data to be comparable.

Accuracy and uncertainties:

115.   The ERT commends Latvia for implementing the recommendations made in the previous review. Latvia has used updated emission factors in the waste sector, in line with the EMEP/EEA Guidebook.

Improvement:

116.   The ERT commends Latvia for the improvements in transparency, completeness and accuracy performed since the previous review.

Sub-sector Specific Recommendations.

Category issue 1: 6.C.a Clinical waste incineration - All pollutants

117.   The ERT finds that the time series for clinical waste incineration is incomplete. Latvia informed the ERT that activity data on waste had been available from 1999 onwards from national statistics and that no emissions had been reported prior to 1999 due to a lack of activity data. The ERT recommends that Latvia investigates the subject of clinical waste incineration for the years 1990-1998 and includes some estimates for the resulting emissions.

Category issue 2: 6.C.b Industrial waste incineration - All pollutants

118.   Similarly, the ERT finds that the time series for hazardous waste incineration is incomplete. Latvia informed the ERT that activity data on waste had been available from 1999 onwards from national statistics and that no emissions had been reported prior to 1999 due to a lack of activity data. The ERT recommends that Latvia investigates the subject of hazardous waste incineration for the years 1990-1998 and includes some estimates for the resulting emissions.

LIST OF ADDITIONAL MATERIALS PROVIDED BY THE COUNTRY DURING THE REVIEW

1. As part of a response to questions related to the energy sector, raised during the review: "Emission_factors_corrected.xls"

2. Corrected figure for fuel consumption in the Transport category 1A4a ii