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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:**

GEORGIA

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INTRODUCTION

1. The mandate and overall objectives for the emission inventory review process under the LRTAP Convention is 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 SO₂, NO_x, NMVOC, NH₃, plus PM₁₀ & PM_{2.5} and POPs for the time series years 1990 – 2010 reflecting current priorities from the EMEP Steering Body and the Task Force on Emission Inventories and Projections (TFEIP). HMs have been reviewed where possible.
3. This report covers the stage 3 centralised reviews of the UNECE LRTAP Convention and EU NEC Directive inventories of Georgia coordinated by the EMEP emission centre CEIP acting as review secretariat. The review took place from 25th June 2012 to 29th June 2012 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 – David Kuntze (Germany), Energy – Ricardo Fernandez (EU/EEA), Transport – Helen Heintalu (Estonia), Industry – Julien Jabot (France), Solvents – David Kuntze (Germany), Agriculture +Nature – Hakam Al-Hanbali (Sweden), Waste – Intars Cakaras (Latvia).
4. Anne Misra 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. Georgia submitted a NFR table for 2010 and the UNECE notification form which summarises the year and pollutants reported under LRTAP. In the notification form emissions are listed as national totals for the main sectors from 2005 to 2010. No IIR was submitted.
6. Based on the 2010 NFR table and the notification form provided by the Party, the ERT was only partly able to review the Georgian inventory.
7. The ERT strongly encourages Georgia to report NFR tables for every year for the complete time series from 1990 to 2010. In addition, a transparent IIR should be submitted, containing information about data collection, data sources, emission factors, methods used for calculations, QA/QC procedures, recalculations, uncertainty, and implemented/planned improvements for all pollutants and sectors.

INVENTORY SUBMISSION

8. The inventory is partly in line with the EMEP/EEA Inventory Guidebook and the UNECE Reporting Guidelines. In their 2012 submission, Georgia has provided a national inventory for the year 2010 in NFR09 categories for the pollutants CO, NH₃, NMVOC, NO_x, SO₂, TSP and BaP. No emissions of POPs are reported. For the following sectors emissions are reported: 1A1, 1A3, 1B1, 2A, 2B, 2C, 2D and 4B. No emissions are reported in sectors 2E-G, 3, 4A, 4C-G, 5 and 6.
9. No IIR has been provided.

KEY CATEGORIES

10. No IIR has been provided, and therefore it is not possible to comment on the Key Category Analysis (KCA). The ERT strongly encourages Georgia to include a key category analysis in their IIR as part of their 2013 submission and to use the findings of this report to prioritise areas of improvement.
11. The ERT encourages Georgia to present key sources as trends as well as percentage contributions to total emissions in their 2013 IIR. To clarify this issue, the ERT recommends that Georgia includes trends for key sources over the complete time period and includes all sources contributing to an accumulated 80% of the total emissions for each pollutant, in line with the UNECE Guidelines.
12. The stage 2 Key Source Category Analysis (KCA) identified the following sectors as key sources:
NO_x 1 A 3 b iii (39.1%), 1 A 3 b i (30.6%), 2 B 5 a (12.1%)
NMVOC 1 A 1 a (44.6%), 1 A 3 b i (32.0%), 1 A 3 b iii (20.1%)
SO_x 1 A 1 c (50.1%), 1 A 3 b iii (41.4%),
NH₃ 4 B 1 a (60.0%), 4 B 1 b (26.1%),
TSP 1 A 1 c (40.8%), 1 A 3 b iii (19.7%), 2 A 7 d (10.3%), 2 C 2 (6.4%), 1 B 1 a (5.7%),
CO 1 A 3 b I (65.8%), 1 A 3 b iii (17.1%)
13. The KCA shows that the transport sector dominates the emissions of NO_x and CO. NMVOC, SO₂ and TSP emissions are key pollutants in the transport and

energy sector. For NH₃ agriculture is the only key category. The ERT strongly encourages Georgia to use the results from the stage 1 and 2 reviews as a starting point for future improvements.

QUALITY

Transparency

14. The ERT cannot comment on the transparency of the methodology because no IIR has been submitted to UNECE up to now.

15. Georgia uses NE in a number of areas in the reporting tables without an explanation in the 'Additional Info' tab. The ERT encourages Georgia 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 not occurring. For NE and IE Georgia is encouraged to provide further explanation in the 'Additional Info' tab in the official reporting template.

Completeness

16. Georgia does not report emissions for 1990 to 2009 and does not report activity data on any of the years. The ERT encourages the Party to provide this information in their 2013 submission.

17. Georgia does not report emissions of POPs. The ERT encourages the Party to provide emissions of POPs in their 2013 submission.

18. Georgia reports emissions of TSP but does not report emissions of PM₁₀ or PM_{2.5}. Scaling or conversion factors for PM₁₀ and PM_{2.5} can be found on the US EPA website. The ERT encourages Georgia to report emissions of PM₁₀ and PM_{2.5} in the future.

19. Georgia does not report QA/QC or improvement procedures. To improve the completeness and transparency of the submitted inventory, the ERT encourages Georgia to provide detailed information in the 2013 IIR.

20. The ERT further encourages Georgia to add more information as to why some sources are currently not reported (e.g. lack of activity data, the source does not exist in Georgia) and whether there are plans to report them in the future.

Consistency, including recalculations and time series

21. Georgia has not submitted an IIR. Thus, no information is available regarding the recalculations performed. The ERT encourages Georgia to provide detailed and complete information on recalculations in the next IIR submission for each source, pollutant and year for which recalculations have been performed.

Comparability

22. The ERT commends Georgia for using the NFR09 reporting format. However, the ERT cannot judge whether the inventory is comparable with those of other reporting parties and if the allocation of source categories follows that of the EMEP/UNECE Reporting Guidelines. Georgia reports only some emissions and has provided no activity data and no IIR. Thus the ERT cannot evaluate the comparability of the Georgian inventory. The ERT encourages Georgia to submit the missing information in the next (2013) submission.

CLRTAP/NECD comparability

23. Georgia, as a non-EU member state, does not report emissions under the National Emission Ceilings (NEC) Directive.

Accuracy and uncertainties

24. It is not known whether Georgia performs an uncertainty analysis. The ERT encourages Georgia to provide quantitative uncertainty estimates of emission values, especially for key sources, in their next submission.

Verification and quality assurance/quality control approaches

25. Georgia does not present any information on their QA/QC procedures. The ERT strongly recommends that Georgia provides information on QA/QC procedures in the IIR.

26. The ERT further encourages Georgia to provide information on activity data, emission factors and the methodologies which have been used, so as to enable the ERT to verify the emissions provided.

FOLLOW-UP TO PREVIOUS REVIEWS

27. Georgia provided a response to the question raised during the stage 2 review concerning NMVOC emissions. The ERT would also like to thank Georgia for providing additional information as part of the stage 3 review.

AREAS FOR IMPROVEMENT IDENTIFIED BY GEORGIA

28. Georgia does not list any improvements as part of the 2012 submission.

PART B: RECOMMENDATIONS FOR IMPROVEMENTS TO THE PARTY

CROSS-CUTTING IMPROVEMENTS IDENTIFIED BY THE ERT

29. The ERT encourages Georgia to provide an emission inventory covering all pollutants, sectors and the complete time series.
30. The ERT recommends that the Party improves its inventory by providing an IIR including all necessary information on methodologies, activity data, the emission factors applied and explanatory information on all notation keys used, on recalculations as well as on performed and planned improvements in its next submission.
31. The ERT recommends that the Party performs and presents an uncertainty analysis and uses it as a tool to focus planned improvements on the key categories.
32. The ERT encourages Georgia to provide more detailed descriptions of the time series for key sources in the IIR
33. The ERT encourages Georgia to provide details of existing QA/QC procedures.
34. The ERT encourages Georgia to elaborate on the rationale and explanation for recalculations and their implication for trends in the sectors in the IIR.
35. The ERT recommends that the Party reviews the use of 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”).
36. The ERT recommends that the Party provides sub-category level chapters to aid navigation in the IIR.
37. The ERT encourages Georgia to present the recommended improvements with references to specific source categories in the relevant sector sections of this report.

SECTOR-SPECIFIC RECOMMENDATIONS FOR IMPROVEMENTS IDENTIFIED BY ERT

ENERGY

Review Scope

Pollutants Reviewed		NOx, NMVOC, SO ₂ , TSP, CO, B(a)p		
Years		2010		
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		
1.A.2.f.ii	Mobile Combustion in Manufacturing Industries and Construction: (Please specify in your IIR)	X		
1 A 3 e	Pipeline compressors	X		
1.A.4.a.i	commercial / institutional: stationary	X		
1.A.4.a.ii	commercial / institutional: mobile	X		
1.A.4.b.i	residential plants	X		
1.A.4.b.ii	household and gardening (mobile)	X		
1.A.4.c.i	Agriculture/forestry/fishing, stationary	X		
1.A.4.c.ii	off-road vehicles and other machinery?	X		
1.A.4.c.iii	national fishing	X		
1.A.5.a	other, stationary (including military)	X		
1.A.5.b	other, mobile (including military, land based and recreational boats)	X		
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		
1 B 2 b	Natural gas	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: Due to a lack of data the no sector-specific review could be undertaken. General comments are provided. No responses to questions were provided as part of the review week.

General recommendations on cross-cutting issues.

38. Georgia provided very limited information on stationary combustion in its 2012 inventory submission to LRTAP. The ERT notes that Georgia has reported energy statistics to the International Energy Agency (IEA) and that data are available for the period 1990 to 2010. Fuel-specific calorific values have also been reported to the IEA. The ERT believes that this activity data could be used as a good basis for

estimating air pollutant emissions according to the Guidelines for Reporting Emission Data under the LRTAP. Default emission factors from the 2009 EMEP/EEA Guidebook could be used in combination with the activity data from the energy balance to produce Tier 1 emission estimates.

Useful data sources are:

39. *Energy balances for Georgia (IEA)*

<http://www.iea.org/countries/non-membercountries/georgia/>

40. *Air pollutant emission inventory guidebook (EMEP/EEA)*

<http://www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2009>

41. The ERT also recommends that Georgia ensures that inventory compilers have access to all relevant data for the estimation of transparent, accurate, comparable, consistent and complete emission estimates, to the extent possible, to ensure the consistent use and reporting of activity data and emissions under both the LRTAP and UNFCC Conventions.

TRANSPORT

Review Scope

Pollutants Reviewed		NOx, NMVOC, SO ₂ , TSP, CO, B(a)p		
Years		2010		
NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendation Provided
1.A.2.f.ii	Mobile Combustion in manufacturing industries and construction: (Please specify in your IIR)	NE		X
1.A.3.a.i.(i)	international aviation (LTO)	NE		X
1.A.3.a.i.(ii)	international aviation (cruise)	X		X
1.A.3.a.ii.(i)	civil aviation (domestic, LTO)	NE		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		X
1.A.3.b.iii	road transport, heavy duty vehicles	X		X
1.A.3.b.iv	road transport, mopeds & motorcycles	NE		X
1.A.3.b.v	road transport, gasoline evaporation	NE		X
1.A.3.b.vi	road transport, automobile tyre and brake wear	NE		X
1.A.3.b.vii	road transport, automobile road abrasion	NE		X
1.A.3.c	railways	NE		X
1.A.3.d.i (ii)	international inland navigation	NE		X
1.A.3.d.ii	national navigation	NE		X
1.A.4.a.ii	commercial/institutional (mobile)	NE		X
1.A.4.b.ii	household and gardening (mobile)	NE		X
1.A.4.c	agriculture / forestry / fishing	NE		X
1.A.4.c.ii	off-road vehicles and other machinery	NE		X
1.A.4.c.iii	national fishing	NE		X
1.A.5.b	other, mobile (including military, land based and recreational boats)	NE		X
1 A 3 d i (i)	International maritime navigation	X		X
1 A 3	Transport (fuel used)	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:

42. The transparency of Georgia's emissions inventory is very limited. Georgia has not submitted an IIR and therefore there is no information on activity data, emission factors or the methods used for the emission calculations. The ERT recommends that the Party improves its inventory by providing an IIR including all the necessary information on the methodologies, activity data and emission factors applied, as well as explanatory information on all the notation keys used as well as on recalculations and planned improvements for the next submission. The ERT encourages the Party to submit reporting templates with emission data for the complete time series (1990 to 2010) and also on other mobile sources besides road transport in line with the source disaggregation defined in the reporting requirements.

43. Estimates are not provided at the most detailed level for the road transport sector. Estimates for other mobile sources are not calculated. Instead, Georgia uses the notation key "NE" frequently in a number of areas in the reporting tables.

Completeness:

44. The ERT considers the transport sector as not complete. Georgia has calculated emissions only for the sectors 1A3bi, 1A3bii and 1A3biii but not for other transport sectors. Emissions data are provided only for the pollutants NO_x, NMVOC, SO₂, CO, TSP and Benzo(a)pyrene. Other pollutants are not estimated. Therefore, the ERT encourages the Party to provide such data in NFR tables in next year's submission.

Consistency including recalculation and time series:

45. Georgia only provided a reporting template with emission data for 2010. There was no data available for previous years. The ERT encourages Georgia to submit the complete time series and provide descriptions of trends in the IIR.

46. Georgia has not recalculated emissions for any of the pollutants reported in the inventory.

Comparability:

47. During the review, Georgia stated that they use country-specific methodology and emission factors for emission calculations. Nevertheless, no detailed information has been provided on the methodology, activity data or emission factors used for the calculation of emissions. Therefore, it is not possible to see whether the methods used are consistent with those in the Guidebook or comparable with other countries.

Accuracy and uncertainties:

48. Georgia has not provided any uncertainty estimates. The ERT encourages Georgia to undertake an uncertainty analysis for the transport sector to help inform the improvement process and to provide an indication of the reliability of the inventory data.

49. There is no description of QA/QC activities. The ERT encourages the Party to implement sector-specific OA/QC procedures in future submissions.

Improvement:

50. There is no information provided on improvement plans. During the review, the Party stated that there is a need to improve statistical data first, to improve emission calculations for the transport sector. Therefore, the ERT warmly encourages Georgia to consider the recommendations made during this review as a starting point.

Sub-sector Specific Recommendations.**Category issue 1: 1A3bi, 1A3bii & 1A3biii: Road transport**

51. During the review, Georgia stated that they use country-specific methodology which should be more or less similar to the Tier 1 methodology in the EMEP/EEA Guidebook. Therefore, the ERT encourages the Party to add detailed information on the methodology, emission factors and activity data used in the next IIR.

52. In addition, other pollutants are likely to be emitted apart from NO_x, NMVOC, SO₂, TSP, CO and Benzo(a)pyrene. Therefore, the ERT encourages the Party to report other relevant pollutants, by using emission factors provided for Tier 1 in the Guidebook.

53. According to the report *Georgia's Second National Communication to the UNFCCC (Tbilisi, 2009)*, emission calculations for the road transport sector are made by using the COPERT programme (Tier 3) to verify GHG emission calculation results. Therefore, there might be a possibility to use the same dataset to calculate and report emissions at a more detailed level in the NFR tables. Since road transport is a key source for most pollutants, the ERT suggests using the highest tier level possible.

54. The ERT has noted that Georgia calculates TSP emissions from the road transport sector. The ERT encourages Georgia to break down TSP emissions into PM_{2.5} and PM₁₀.

Category issue 2: All other mobile sources – All Pollutants

55. Other transport sectors are marked as “NE”. According to the report *Georgia's Second National Communication to the UNFCCC (Tbilisi, 2009)*, GHG emission calculations are carried out for the aviation and railways sector. Therefore, the ERT suggests that the Party uses the same activity data if possible or makes efforts to find statistical data on fuel consumption to calculate emissions for other transport sectors. Necessary emission factors are provided for each sub-sector in the EMEP/EEA Guidebook to estimate emissions using Tier 1 methodology.

INDUSTRIAL PROCESSES

Review Scope

Pollutants Reviewed		SO ₂ , NO _x , NMVOC, CO, NH ₃ , TSP, PM ₁₀ & PM _{2.5}		
Years		2010		
NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendation Provided
2A	Industrial processes	X		X
2.A.1	cement production	X		X
2.A.2	lime production	X		X
2.A.3	limestone and dolomite use	NE		
2.A.4	soda ash production and use	X		
2.A.5	asphalt roofing	X		
2.A.6	road paving with asphalt	X		X
2.A.7.a	Quarrying and mining of minerals other than coal	NE		
2.A.7.b	Construction and demolition	NE		
2.A.7.c	Storage, handling and transport of mineral products	NE		
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	NE		
2.B.2	nitric acid production	NE		
2.B.3	adipic acid production	NE		
2.B.4	carbide production	NE		
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)	NE		
2.C.1	iron and steel production	NE		
2.C.2	ferroalloys production	NE		
2.C.3	aluminium production	NE		
2.C.5.a	Copper Production	NE		
2.C.5.b	Lead Production	NE		
2.C.5.c	Nickel Production	NE		
2.C.5.d	Zinc Production	NE		
2.C.5.e	Other metal production (Please specify the sources included/excluded in the notes column to the right)	NE		
2.C.5.f	Storage, handling and transport of metal products (Please specify the sources included/excluded in the notes column to the right)	NE		
2.D.1	pulp and paper	X		
2.D.2	food and drink	X		
2.D.3	Wood processing	X		
2.E	production of POPs	NE		
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		
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

56. The ERT noted that Georgia only submitted emissions for the main pollutants (SO₂, NO_x, NMVOC, CO, NH₃, TSP, PM₁₀ & PM_{2.5}) for the year 2010 in the CLRTAP NFR table. The ERT's review work relied only on this table.

Transparency and completeness:

57. As only the 2010 NFR table has been provided by Georgia, the inventory is considered far from being complete and transparent. The ERT recommends that Georgia provides an IIR according to *the Guidelines for reporting emission data under the convention on long-range transboundary air pollution*.

58. The ERT has noted that notation keys do not seem to be properly used and the ERT refers to the section below, *Sector-specific Recommendations*, for proper use of the main notation keys.

Consistency including recalculation and time series:

59. Since no information was provided apart from 2010 emissions, the ERT could not assess the consistency of the reported information.

Comparability:

60. Since no information was provided on the methods used for emission calculations, the ERT could not assess the comparability of the reported information.

Accuracy and uncertainties:

61. Since no information was provided on accuracy or uncertainties, the ERT could not assess the accuracy of the reported information.

Improvement:

62. After consultation with the ERT, it appears that Georgia is planning to improve its inventory by implementing the methodologies described in the 2009 EMEP/EEA Guidebook. The ERT recommends that Georgia sets up an improvement plan according to the review recommendations.

Sub-sector Specific Recommendations.

Category issue 1: 2A1 – Cement production – PM₁₀ & PM_{2.5}

63. TSP emissions are estimated but PM₁₀ and PM_{2.5} emissions are not. The ERT recommends that Georgia estimates PM₁₀ and PM_{2.5} emissions for this sector.

Category issue 2: 2A2 – Lime production – PM₁₀ & PM_{2.5}

64. TSP emissions are estimated but PM₁₀ and PM_{2.5} emissions are not. The ERT recommends that Georgia estimates PM₁₀ and PM_{2.5} emissions for this sector.

Category issue 3: 2A6 – Road paving with asphalt – PM₁₀ & PM_{2.5}

65. TSP emissions are estimated but PM₁₀ and PM_{2.5} emissions are not. The ERT recommends that Georgia estimates PM₁₀ and PM_{2.5} emissions for this sector.

Category issue 4: 2A7d – Other mineral products – PM₁₀ & PM_{2.5}

66. TSP emissions are estimated but PM₁₀ and PM_{2.5} emissions are not. The ERT recommends that Georgia estimates PM₁₀ and PM_{2.5} emissions for this sector.

Sector-specific Recommendations

Category issue 1: 2 - Industrial process – Improvement plan

67. The ERT recommends that Georgia provides an IIR according to *the Guidelines for reporting emission data under the convention on long-range transboundary air pollution* and sets up an inventory improvement plan for industrial processes according to the review recommendations.

Category issue 2: 2 - Industrial process – Notation keys

68. During the review Georgia mentioned that it had some difficulties with the use of the notation keys NO, NA, and NE in the industrial processes sector. For the purpose of clarification, the ERT provided Georgia with the definitions of some notation keys, illustrated with examples:

- (a) **Not occurring (NO):** A source or process does not exist within a country.
Example: Ammonia production does not occur. The notation key NO.
- (b) **Not applicable (NA):** The source exists but relevant emissions are considered never to occur. **Example:** Ammonia production occurs but SO₂ and CO are not emitted as part of the process. The notation key NA should be used for SO₂ and CO.
- (c) **Not estimated (NE):** Emissions occur, but have not been estimated or reported. **Example:** Ammonia production occurs but no data is available to estimate NH₃. Use the notation key NE for NH₃.
- (d) **Included elsewhere (IE):** Emissions for this source are estimated and included in the inventory but not presented separately for this source. The NFR code where these emissions are included should be indicated. **Example:** Ammonia production only occurs in one facility which produces also nitric acid. Emissions cannot be separated because the operator gives emissions for all activities. Then emissions have to be reported in only one activity in the NFR Table. For the second activity, the notation key IE should be used.

SOLVENTS

Review Scope

Pollutants Reviewed		None reported		
Years				
NFR Code	CRF_NFR Name	Reviewed	Not Reviewed	Recommendati on Provided
3.A.1	Decorative coating application			X
3.A.2	Industrial coating application			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
3.B.2	Dry cleaning			X
3.C	Chemical products,			X
3.D.1	Printing			X
3.D.2	Domestic solvent use including fungicides			X
3.D.3	Other product use			X
Note: No emissions are reported for the Solvent sector.				

General recommendations on cross-cutting issues

69. Georgia does not report emissions for the Solvents sector. During the review, Georgia informed the ERT that, as part of the framework of the on-going EU project 'Air Quality Governance in ENPI Countries', Georgia plans to assess the NMVOC content of products produced in the country and further develop an inventory system to assess the NMVOC content of products as identified in Annex XI to the Gothenburg Protocol. The ERT commends Georgia for the intention to collect data and to report NMVOC emissions for the NFR sector 3.

70. The ERT proposes that the Tier 1 methods described in the Guidebook should be used for sub-sectors of NFR 3 where data cannot be collected by the newly developed inventory system (see <http://www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2009>).

AGRICULTURE

Review Scope

Pollutants Reviewed		NH ₃		
Years		2010		
NFRCode	CRF_NFRName	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		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			
4 D 2 a	Off-farm storage, handling and transport of bulk agricultural products			
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)			
4 F	Field burning of agricultural wastes	x		x
4 G	Agriculture other(c)			
11 A	(11 08 Volcanoes)			
11 B	Forest fires			

Note: Georgia reported only NH₃ emissions for the Agriculture sector

General recommendations on cross-cutting issues

Transparency:

71. Georgia has not provided any description of the methodologies used or activity data for the Agriculture sector. However, the Party has provided some emission data in its 2010 NFR tables but with no reference to activity data and the methodologies used. Thus, the ERT finds it difficult to understand how emissions were calculated. The ERT recommends that Georgia provides a detailed Agriculture chapter as part of its IIR with a transparent description of the methodologies applied and their related levels (Tier 1, 2 or 3), and that it includes the activity data used in the calculations.

Completeness:

72. The agriculture inventory of Georgia, as given in the submitted 2010 NFR tables, covers only emissions of NH₃ from 4.B (manure management). Particle

emissions are reported as not estimated “NE”. In addition, emissions of NH₃ and particles from 4.D (synthetic N fertilisers) are also reported as not estimated “NE”. The 2009 EMEP/EAA Guidebook offers simple methodologies for NH₃ and particles emissions from livestock husbandry and from agricultural soils cultivation. The ERT recommends that the Party uses appropriate notation keys where estimates are not available or not occurring.

Consistency including recalculation and time series:

73. The ERT asked Georgia during the review process to clarify the reasons for the dip of approximately 15 % in NH₃ emissions between 2005 and 2006 and for a dip of about 24 % between 2005 and 2010. The Party responded that “the reason for these decreases is loss of livestock, mainly caused by so-called swine and avian (bird flu) influenza”. The Party added that “between 2005 and 2006 the number of sows declined by about 37 %; poultry by about 28 %; dairy cattle by about 17 %. Between 2005 and 2010 these losses amounted to: sows 76%; sheep and goats 20 %; dairy cattle 21 %”. The ERT recommends that the Party includes these explanations in future inventory submissions to increase transparency.

Comparability:

74. The ERT recommends that Georgia compares its inventory parameters with the 2009 EMEP/EEA Guidebook and other reporting Parties to check if the emission factors used reflect the Georgian situation.

Accuracy and uncertainties:

75. The ERT encourages Georgia to undertake an uncertainty analysis (quantitative where possible) for the Agriculture sector, to steer the improvement process and to provide an indication of the reliability of the inventory data.

Improvement:

76. The ERT encourages Georgia to undertake some improvements such as providing additional information on activity data e.g., 4.B (manure management) and 4.D (synthetic N fertilizers), explanations of emission trends and the inclusion of documentation of planned and performed improvements in future submissions.

Sub-sector Specific Recommendations.

4.B Manure management: NH₃ and particles

77. The ERT has observed that emission of NH₃ is reported as not estimated “NE”. Since NH₃ and particles emission are key sources for 4.B, the ERT recommends that Georgia estimates the emissions of these pollutants (from e.g. 4 B2 Buffalo, 4B6 Horses, 4B7 Mules and Asses, and 4B9a-c)) in future submissions.

78. The ERT also recommends that Georgia gives detailed descriptions and information on the methodology used and provides the activity data used in the calculation of emissions in future submissions.

4.D.1 Agricultural Soils: NH₃ and particles

79. The ERT recommends that Georgia estimates emissions of NH₃ and particles from 4.D (synthetic N fertilizers) in its future submissions.

80. The ERT also recommends that Georgia provides activity data and detailed information on the breakdown of national fertiliser consumption into the relevant compounds in use and reports those emissions under 4D1 (direct soil emissions).

4. F Field burning of agricultural wastes

81. The ERT encourages Georgia to estimate emissions of pollutants from 4.F (Field burning of agricultural wastes), if such an activity is practised in the country.

WASTE

Review Scope:

Pollutants Reviewed		All		
Years		All		
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: Due to a lack of data no sector-specific review could be undertaken. General comments are provided. No responses to questions were provided during the review week.

General recommendations on cross-cutting issues.

82. Georgia does not report emissions for the waste sector for the years 1990 to 2010. Georgia's 2012 CLRTAP report does not contain a separate waste chapter. The ERT encourages the Party to start calculating emissions from the waste sector.

83. According to "Georgia's Second National Communication to the UNFCCC" (Tbilisi, 2009), data on waste disposal and waste water are available in Georgia, because some calculations are done for GHG emissions. If it is possible to calculate CH₄ emissions from solid waste disposal and waste water discharge, it is also possible to calculate NMVOC emissions for the NFR sectors 6A and 6B. The same activity data could be used for these calculations. Emission factors are available in the EMEP/EEA Guidebook.

84. If there are no emissions from crematoria then the notation key "NO" should be used for sector 6Cd. However, information about crematoria should be publicly available.

85. For the waste incineration sectors (6Ca, 6Cb, 6Cc) correct data are needed. Without regular waste surveys it is not possible to obtain that kind of data. As a starting point the Party could start surveying facilities involved in waste incineration. Incineration of clinical wastes predominately occurs at medical institutions. Thus a survey of hospitals could help to identify whether these activities take place in Georgia or not. Incineration of municipal wastes mostly refers to incineration plants that do not produce energy. Many countries do not have this kind of activities. In most cases the waste is incinerated to obtain energy and thus emissions from these plants would be allocated to the energy sector.

86. Industrial waste incineration can be found in most countries. Industrial waste incineration takes place in enterprises, where production residues are burned within the plant. Hazardous waste incineration without energy production is also captured in this sector. Regular waste data collection is required for emission calculations. The

ERT recommends that the Party starts with a survey of the largest production plants in the country to determine the scale of activities taking place. In the absence of robust data, estimations and extrapolations are acceptable. The Party should clearly explain the methods used for these estimates and extrapolations in the IIR.

87. To estimate emissions for small-scale waste burning (6Ce) a broad study would be required. This activity refers to households which are not using waste collection services and thus burn wastes in their backyards. The ERT thinks that this practice could be very popular in Georgia's rural areas. Available activity data only exist as estimates for this sector. The ERT recommends that Georgia collects actual data for this sector.

88. 6D - Other wastes includes composting. There are not many emission factors provided for that kind of activities in the 2009 EEA/EMEP Guidebook. The ERT recommends that Georgia identifies other waste management activities.

89. The ERT encourages Georgia to calculate emissions for all pollutants. In the absence of country-specific data, default EFs can be used or EFs from similar countries (Eastern Europe, former USSR Republics, Caucasus region countries, Turkey).

90. Blank and "0" values in NFR tables should not be used. The ERT recommends that the Party uses notation keys where emissions are not calculated (NE) or do not occur (NO) in the country.

LIST OF ADDITIONAL MATERIALS PROVIDED BY THE COUNTRY DURING THE REVIEW

Response to questions raised during the review:

General

No information provided

Energy

No information provided

Transport

GEORGIA_Answers_Transport.docx

Industrial processes

Georgia_Answer_Industry.doc

Agriculture

Georgia_Answers_Agriculture.docx

Solvents

Georgia_Answer_Solvents use.doc

Waste

No information provided