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# **Review of the 2014 Adjustment Application by Croatia**

Expert Review Team Report for the EMEP Steering Body

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## Expert review team

<b>Role</b>	<b>Sector</b>	<b>Name</b>
Adjustment lead reviewer	All	Chris DORE (UK)
Primary expert reviewer	Energy fugitives	GJ VENHUIS (NL)
Secondary expert reviewer	Energy fugitives	Stephan POUPA (NL)
Primary expert reviewer	Agriculture (4B)	Michael ANDERL (AT)
Secondary expert reviewer	Agriculture (4B)	Jim WEBB (UK)
Primary expert reviewer	Waste (6B)	Intars Cakars (LT)
Secondary expert reviewer	Waste (6B)	Dirk Wever (NL)
Basic checks (Step 1 and 2)	N/A	Katarina MARECKOVA (CEIP)

## Executive Summary

1. As mandated by Decision 2012/3 (ECE/EB.AIR/111/Add.1) of the Executive Body of the CLRTAP the nominated Expert Review Team undertook a detailed review of the adjustment application submitted by Croatia. The review was undertaken on behalf of the EMEP Steering Body and following the guidance published in the Annex to decision 2012/12 (ECE/EB.AIR/113/Add.1).
2. Each sector of the application was reviewed by two independent sectoral experts during May and June 2014. The findings were discussed at the meeting held from 23-27 June 2014 in Copenhagen at the EEA. The conclusions and recommendations for the EMEP SB are documented in this country report.

**Table ES1 Summary Information on Submitted Application**

Sectors, and reasons for, adjustment application (Decision 2012/3, para 6)	Energy fugitives (1B1b, 1B2avi): New sources Agriculture (4B): New sources and significantly different EFs Waste (6B): New sources
Pollutants for which adjustment is applied for	NH <sub>3</sub>
Year(s) for which adjustment is applied for	Application for adjustment to 2010 Gothenburg ceiling for NH <sub>3</sub>
Date of notification to the Secretariat	15 February 2015

3. The Expert Review Team reviewed and evaluated the documents submitted by Croatia.
4. **NH<sub>3</sub> emissions from Fugitive Emissions from Solid Fuels Transformation (1B1b) and Refining/Storage (1B2avi):** The ERT concludes that the applications do not fulfil the criteria in Decision 2012/3, as emissions from Fugitive Emissions from Solid Fuels Transformation and Refining/Storage cannot be considered as “new” sources, because an emission factor is included in the EMEP/EEA Emissions Inventory Guidebook 2009. The Expert Review Team therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.
5. **NH<sub>3</sub> emissions from Goats and Mules/Asses (4.B.4, 4.B.7):** The ERT concludes that the applications do not fulfil the criteria in Decision 2012/3, as emissions from Goats (4.B.4) and Mules/Asses (4.B.7) cannot be considered as “new” sources because methods and emission factors were available when the emission targets were established. The Expert Review Team therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.
6. **NH<sub>3</sub> emissions from Dairy Cattle, Horses, Swine and Poultry (4.B.1.a, 4.B.6, 4.B.8, 4.B.9):** The ERT concludes that the applications do not fulfil the criteria in Decision 2012/3, as the revisions made to emission factors for Dairy Cattle, Horses, Swine and Poultry (4.B.1.a, 4.B.6, 4.B.8, 4.B.9) represent changes to farming practices. These revisions are therefore part of the continuous improvement programme that should be applied to emission inventories, and does not constitute “extraordinary circumstances” as specified in Decision 2012/3. The Expert Review Team therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.
7. **NH<sub>3</sub> emissions from Latrines (6B):** The ERT concludes that the applications do not fulfil the criteria in Decision 2012/3, as a methodology for estimating NH<sub>3</sub> emissions from latrines is available

in the 3<sup>rd</sup> Version of the EMEP/EEA Emission Inventory Guidebook (2000) and therefore it cannot be considered a new emission source. The ERT therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.

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## 1 Introduction and Context

8. Parties may apply to adjust their inventory data or emission reduction commitments if they are (or expect to be) in non-compliance with their emission reduction targets<sup>1</sup>. However, in making an adjustment application, they must demonstrate that extraordinary circumstances have given rise to revisions to their emissions estimates. These extraordinary circumstances fall into three broad categories:

9. Emission source categories are identified that were not accounted for at the time when the emission reduction commitments were set; or

10. For a particular source, the emission factors used to estimate emissions for the year in which emissions reduction commitments are to be attained are significantly different to those used when the emission reduction commitments were set; or

11. The methodologies used for determining emissions from specific source categories have undergone significant changes between the time when emission reduction commitments were set and the year they are to be attained.

12. Any Party submitting an application for an adjustment to its inventory is required to notify the Convention Secretariat through the Executive Secretary by 15 February at the latest. The supporting information detailed in Decision 2012/12 must be provided (either as part of the Informative Inventory Report, or in a separate report) by 15 March of the same year.

13. As mandated by Decision 2012/12 of the Executive Body of the CLRTAP, applications for adjustments that are submitted by Parties are subject to an expert review<sup>2</sup>. Technical coordination and support to the review is provided by EMEP's Centre on Emission Inventories and Projections (CEIP). The members of the review team are selected from the available review experts<sup>3</sup> that Parties have nominated to the CEIP roster of experts.

14. The Expert Review Team (ERT) undertakes a detailed technical review of the adjustment application in cooperation with the EMEP technical bodies and makes a recommendation to the EMEP Steering Body on the acceptance or rejection of the application. The EMEP Steering Body then takes its decision on any adjustment application based on the outcome of the technical assessment completed by ERT.

15. The flow diagram below outlines the different stages of the technical review. The following sections of this report are structured in the same way, and describe in detail the findings of the ERT at each of the decision gates in the process.

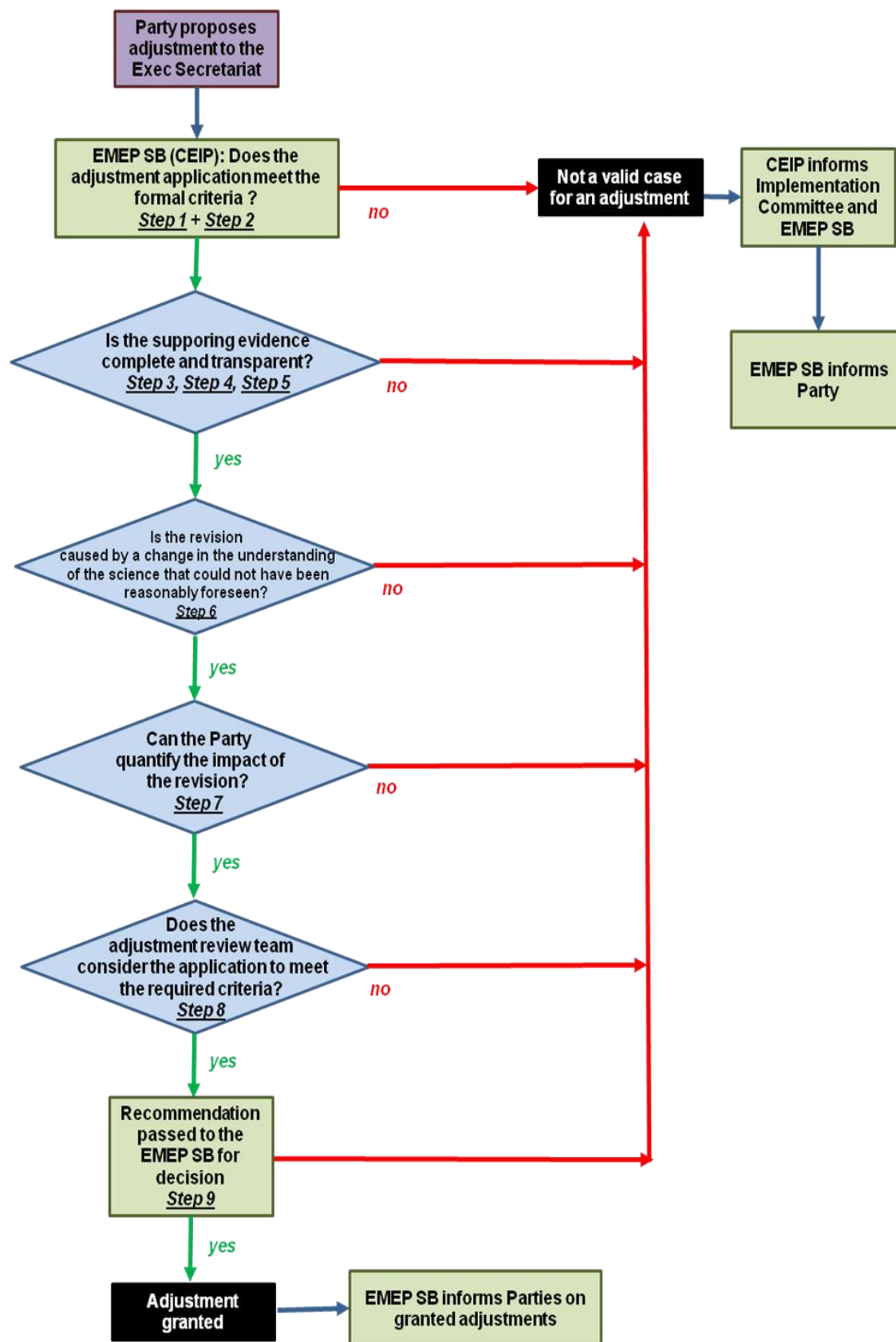
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<sup>1</sup> Throughout this report the term "emission reduction commitments" is used. However, the term "emission ceilings" is equally applicable.

<sup>2</sup> The EMEP Steering Body, in conjunction with other appropriate technical bodies under EMEP, shall review the supporting documentation and assess whether the adjustment is consistent with the circumstances described in paragraph 6 of decision 2012/3 and the further guidance in decision 2012/12.

<sup>3</sup> [http://www.ceip.at/fileadmin/inhalte/emep/pdf/2014/0\\_Roster\\_2014.pdf](http://www.ceip.at/fileadmin/inhalte/emep/pdf/2014/0_Roster_2014.pdf)

Figure 1: Flow Diagram/Decision Tree for the Review of Adjustment Applications



## 2 Review of Submitted Adjustments

### 2.1 Assessment of Formal Criteria

16. Croatia notified the Convention Secretariat through the Executive Secretary of its intention to apply for a new adjustment on 15/02/2014 and thus before the legal deadline of 15 February. All supporting information requested by Decision 2012/12 was provided as part of the Informative Inventory Report before the legal deadline of the 15 March of the same year that it is being submitted for review by the EMEP Steering Body (Decision 2012/12, annex, para 1). Additional documentation was provided during the review in response to requests from the ERT. Section 4 lists the documentation provided by the Party.

17. Croatia submitted an application for an adjustment to its Gothenburg 2010 emissions ceiling for NH<sub>3</sub>, based on adjustments to NH<sub>3</sub> for the following sectors:

- a. Fugitive Emissions from Solid Fuels Transformation (1B1b) and Refining/Storage (1B2avi).
- b. NH<sub>3</sub> emissions from Goats and Mules/Asses (4.B.4, 4.B.7).
- c. NH<sub>3</sub> emissions from Dairy Cattle, Horses, Swine and Poultry (4.B.1.a, 4.B.6, 4.B.8, 4.B.9).

18. Croatia does not comply with its emission reduction commitments listed in Annex II of the Gothenburg Protocol (paragraph 1 of Decision 2012/3). Croatia predicts that it will not meet its emission ceiling for NH<sub>3</sub> by the year 2020.

19. Croatia provided information on the impact of the adjustment to its emission inventory, and the extent to which it would reduce the current exceedance and possibly bring the Party in compliance with emission reduction commitments.

### 2.2 Energy – Fugitive Emissions from Solid Fuel transformation 1B1b, and Refining/Storage 1B2avi (NH<sub>3</sub>)

#### 2.2.1 Assessment of Consistency with Requirements of Decision 2012/3

20. The Party made an application based on new sources.

21. The adjustment application requires the provision of specific supporting information to demonstrate compliance with specific criteria (Decision 2012/3, para. 6a-c). The ERT reviewed the supporting documentation (see section 4) with regard to these criteria and concluded that the application does not meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. In particular, the ERT notes that this application is not based on one of the three circumstances listed in paragraph 6 of Decision 2012/3.

22. NH<sub>3</sub> emissions from the categories 1B1b (Fugitive emissions from solid fuels transformation) and 1B2avi (Refining, storage) are acknowledged in the EMEP/EEA Air Pollutant Emissions Inventory Guidebook 2009. It is therefore the view of the ERT that these cannot be considered new sources. The ERT therefore recommends that the EMEP Steering Body REJECT this adjustment application.



## 2.2.2 Assessment of the quantification of the impact of the revision

23. The adjustment application process requires that the Party submit a quantification of the impact of the adjustment for which an application has been submitted. Table 1 provides an overview of the NH<sub>3</sub> adjustment applications of Croatia in the Energy sector. In the Excel table provided by Croatia, no values were given for 1B1b. In the original pdf document provided by Croatia, Tables 4.1.3-1 and 4.1.3-2 included activity data (556 Gg) for only 1990, and NH<sub>3</sub> EFs (5 g/Mg). This results in just 111 kg of NH<sub>3</sub>. For the years 2005 and onwards, Not Occurring (“NO”) is reported for activity data.

**Table 1: Croatia’s NH<sub>3</sub> Adjustment Applications for Energy Fugitive Emissions**

Reference number	Pollutant	NFR09	unit	1990	2005	2006	2007	2008	2009	2010	2011	2012
CRO/2014/1a	NH <sub>3</sub>	1B1b/ 1.B.2.a.iv	kt	-0.21	-0.22	-0.18	-0.22	-0.17	-0.21	-0.16	-0.13	-0.14

## 2.3 Agriculture Livestock - 4B Goats, Mules/Asses, Dairy Cattle, Horses, Swine & Poultry (NH<sub>3</sub>)

### 2.3.1 Assessment of Consistency with Requirements of Decision 2012/3

24. The Party made an application based on new sources for sub-categories 4.B.4 Goats and 4.B.7 Mules/Asses, and revisions to emission factors for sub-categories 4.B.1.a Dairy Cattle, 4.B.6. Horses, 4.B.8 Swine, 4.B.9 Poultry.

25. The adjustment application requires the provision of specific supporting information to demonstrate compliance with specific criteria (Decision 2012/3, para. 6a-c). The ERT reviewed the supporting documentation (see Annex 1) with regard to these criteria and concluded that:

26. No emission source categories have been identified that were not accounted for at the time when emission reduction commitments were set;

27. EFs used to determine emission levels for particular source categories for the year in which emissions reduction commitments are to be attained are not significantly different than the EFs applied to these categories when emission reduction commitments were set;

28. The methodologies used for determining emissions from specific source categories have not undergone significant changes between the time when emission reduction commitments were set and the year they are to be attained.

29. Croatia indicates that adjustments for the source sub-categories **4.B.4 Goats and 4.B.7 Mules** and asses are a *new source*. The ERT considers that these source categories are not new emission sources acknowledged in scientific literature and/or the EMEP/EEA Air Pollutant Emissions Inventory Guidebook. Both, methods and emission factors were available at the time when the emission targets were established. This improvement in completeness is considered to be routine inventory development and not an “extraordinary” addition of a source. Furthermore, emission estimates for sheep, goats and horses were included in the RAINS model at the time when emission reduction commitments were set.

30. The ERT therefore concludes that the supporting documentation does not support the view that the circumstances on which the adjustment is based follows the Guidance presented in (Decision 2012/3, para. 6a-c).

31. Croatia proposed adjustments for the source sub-categories **4.B.1.a Dairy Cattle, 4.B.6. Horses, 4.B.8 Swine**, 4.B.9 Poultry based on *revisions to emission factors*. Croatia explains that the low emission factors used were appropriate for the lower level of production in the earlier part of the time series, and that the structure of the agriculture sector has significantly changed since then.

32. The ERT considers that annual emission inventories should reflect the level of production in the year reported. It is good practice to change EFs when productivity and farming practices change, and that this is routine inventory improvement/development. Furthermore, calculations in the RAINS model took into account the low milk yields of cattle in Croatia at the time when emission reduction commitments were set.

33. The ERT therefore concludes that the supporting documentation does not support the view that the circumstances on which the adjustment is based follows the Guidance presented in (Decision 2012/3, para. 6a-c).

34. Croatia states in its documentation that according to national emission projections the NH<sub>3</sub> reduction commitment of 30 ktonnes will never be met. Croatia therefore proposes the adjustment of its NH<sub>3</sub> emission reduction commitment to 45 ktonnes. The ERT note that emissions calculated by the original method (30.3 ktonnes of NH<sub>3</sub> in 2012 following the adjustment proposal) are very close to the current target of 30 ktonnes, whereas the proposed target of 45 ktonnes is even higher than the current emission (41.6 ktonnes NH<sub>3</sub> in 2012). The ERT therefore cannot support this proposal as it is not in line with the EMEP/EEA inventory guidebook, and the proposed approach results in incomplete and inaccurate estimates.

### 2.3.2 Assessment of the quantification of the impact of the revision

35. The adjustment application process requires that the Party submit a quantification of the impact of the adjustment for which an application has been submitted. Table 2 provides an overview of the NH<sub>3</sub> adjustment applications for Agricultural Livestock.

**Table 2: Croatia's Adjustment Applications for Agricultural Livestock**

Reference number	Pollutant	NFR09	unit	2005	....	2010	2011	2012
CRO/2014/2a	NH <sub>3</sub>	4.B	kt	-14.9		-13.3	-12.5	-11.3

## 2.4 Waste – 6B Latrines (NH<sub>3</sub>)

### 2.4.1 Assessment of Consistency with Requirements of Decision 2012/3

36. The Party made an application based on new sources for sub-categories 6B Waste water handling – Latrines;

37. The adjustment application requires the provision of specific supporting information to demonstrate compliance with specific criteria (Decision 2012/3, para. 6a-c). The ERT reviewed the supporting documentation (see section 4) with regard to these criteria and concluded that:

- a. The application does not meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. In particular the ERT note that this application

is not based on one of the three circumstances listed in paragraph 6 of Decision 2012/3.

38. The ERT concluded that this source cannot be considered a *new source* because a methodology for estimating emissions of NH<sub>3</sub> from latrines was available in the EMEP/CORINAIR Emission Inventory Guidebook - 3rd edition (2000). Addition of this source to the emissions inventory should therefore be considered as routine emissions inventory development and is not an extraordinary case.

#### 2.4.2 Assessment of the quantification of the impact of the revision

39. The adjustment application process requires that the Party submit a quantification of the impact of the adjustment for which an application has been submitted. Table 3 provides an overview of the NH<sub>3</sub> adjustment applications for Latrines.

**Table 3: Croatia's Adjustment Applications for Latrines**

Reference number	Pollutant	NFR09	unit	2005	....	2010	2011	2012
CRO/2014/2a	NH <sub>3</sub>	6.B	kt	2,83		2,94	2,93	3,15

### 3 Conclusions and Recommendations

40. The ERT has undertaken a full and thorough assessment of the application for an adjustment of the NH<sub>3</sub> emissions reduction commitment that was submitted by Croatia for the following source sectors:

- a. Fugitive Emissions from Solid Fuel transformation 1B1b, and Refining/Storage 1B2avi (NH<sub>3</sub>)
- b. Agriculture Livestock 4B: Goats, Mules/Asses, Dairy Cattle, Horses, Swine and Poultry (NH<sub>3</sub>)
- c. Waste – 6B Latrines (NH<sub>3</sub>)

41. The review of the submitted application followed the guidance provided in the Annex to Decision 2012/12 of the Executive Body of the CLRTAP. The findings of the ERT are described in detail in Section 2 of this report.

42. Table 4 below provides a summary of the adjustment applications received from Croatia, and the subsequent recommendations made by the ERT to the EMEP SB.

**Table 4: Recommendations from the ERT to the EMEP SB**

Country	Sector	NFRs	Pollutant	Years	ERT Recommendation
Croatia	Energy	1B1b, 1B2avi	NH <sub>3</sub>	Emission reduction commitment	Reject
	Agriculture	4B	NH <sub>3</sub>		Reject
	Waste	6B	NH <sub>3</sub>		Reject

43. The ERT concludes that the application regarding NH<sub>3</sub> from Fugitive sources **1.B.1.b** and **1.B.2.a.iv** does not meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. Methodologies for the sources included in the application were included in earlier versions of the EMEP/EEA Emissions Inventory Guidebook (and also included in the IIASA models used for deriving national emission reductions commitments), and therefore cannot be considered new emission sources. The ERT therefore recommends that the EMEP Steering Body **REJECT** the adjustments submitted for these sectors.

44. The ERT concludes that the application regarding NH<sub>3</sub> from Agricultural Livestock sources **4.B.4 Goats, 4.B.7 Mules and Asses** does not meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. Methodologies for the sources included in the application were included in earlier versions of the EMEP/EEA Emissions Inventory Guidebook (and also included in the IIASA models used for deriving national emission reductions commitments), and therefore cannot be considered new emission sources. The ERT therefore recommends that the EMEP Steering Body **REJECT** the adjustments submitted for these sectors.

45. The ERT concludes that the application regarding NH<sub>3</sub> from Agricultural Livestock sources **4.B.1.a Dairy Cattle, 4.B.6. Horses, 4.B.8 Swine, 4.B.9 Poultry** does not meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. The ERT considers that it is good practice to revise emission factors when productivity and farming practices change, but that this constitutes routine emissions inventory development and is not an “extraordinary” revision. Furthermore, the ERT notes that RAINS calculations took into account the low milk yields of cattle in Croatia at the time when emission reduction commitments were set. The ERT therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.

46. The ERT concludes that the application regarding NH<sub>3</sub> from **Latrines (6B)** does not meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. A methodology for estimating NH<sub>3</sub> emissions from latrines is available in the 3<sup>rd</sup> Version of the EMEP/EEA Emission Inventory Guidebook (2000) and therefore it cannot be considered a new emission source. The ERT therefore recommends that the EMEP Steering Body **REJECT** this adjustment application.

## 4 Information Provided by the Party

47. Table 5 lists the information provided by the Party in its adjustment application. The information provided by Party can be downloaded from CEIP website<sup>4</sup>.

**Table 5: Information provided by the Party (as part of the application process)**

Filename	Short description of content
Croatia, pdf	Application- Letter of Croatia to UNECE
Report of Croatia Min of Env_non-compliance with GP, pdf	
Adjustment_NH <sub>3</sub> _Croatia, pdf	Short report describing circumstances

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<sup>4</sup> [http://www.ceip.at/ms/ceip\\_home1/ceip\\_home/adjustments\\_gp/](http://www.ceip.at/ms/ceip_home1/ceip_home/adjustments_gp/)

## 5 References

Decision 2012/3 (ECE/EB.AIR/111/Add.1): Adjustments under the Gothenburg Protocol to emission reduction commitments or to inventories for the purposes of comparing total national emissions with them.

Decision 2012/12 (ECE/EB.AIR/113/Add.1): Guidance for adjustments under the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to emission reduction commitments or to inventories for the purposes of comparing total national emissions with them.

Data submitted by Parties applying for an adjustment:

[http://www.ceip.at/ms/ceip\\_home1/ceip\\_home/adjustments\\_gp/](http://www.ceip.at/ms/ceip_home1/ceip_home/adjustments_gp/)

EMEP/EEA Air Pollutant Emission Inventory Guidebook 2013

<http://www.eea.europa.eu/publications/emep-eea-guidebook-2013>

2009 Reporting Guidelines (ECE/EB.AIR/97) for Estimating & Reporting Emission Data under CLRTAP

The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone

[http://www.unece.org/env/lrtap/multi\\_h1.html](http://www.unece.org/env/lrtap/multi_h1.html)