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Review of the 2017 Adjustment Application by Spain

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Expert Review Team Report for the EMEP Steering Body

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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 Spain. 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) and 2014/1 (ECE/EB.Air/130).
2. The application was reviewed by two independent sectoral experts during May and June 2017. The findings were discussed at the meeting held from 19-23 June 2017 in Copenhagen at the EEA. The conclusions and recommendations for the EMEP SB are documented in this country report.

Table ES1 Summary Information on the Submitted Application

Reasons for adjustment application (Decision 2012/3, para 6 as amended by decision 2014/1, annex, para 3)	Manure Management (3B), NO _x : <i>New source</i> Manure Management (3B) and Agricultural Soils (3D), NH ₃ : <i>significant changes in methodologies</i>
Pollutant for which adjustment is applied for	NH ₃ , NO _x
Year(s) for which inventory adjustment is applied	2010 - 2015
Date of notification of adjustment to the Secretariat	15.02.2017
Date of submission of supporting documentation	14.03.2017

3. The Expert Review Team reviewed and evaluated the documents submitted by Spain.
4. **NO_x emissions from Manure Management (3B)**: In its submission in 2017, Spain reported NO_x emissions from sector *Manure Management (3B)* for the first time. No methodologies for the estimation of NO_x emissions from 3B were included in the EMEP/CORINAR Inventory Guidebook 1999. The ERT concluded that the provided supporting evidence does comply with the criteria presented in Decision 2012/3 and that the application does meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP and therefore recommends that the EMEP Steering Body **ACCEPT** this adjustment application.
5. The quantity and impact of the adjustment recommended for acceptance is summarized in **Table ES2** and Error! Reference source not found..

Table ES2 Aggregated sum of accepted 2017 inventory adjustments (kt), Spain 2010–2015, NO_x

NFR source category(ies)	Thousands of tons (kt) of NO _x					
	2010	2011	2012	2013	2014	2015
3B Manure management	-3.9	-4.0	-3.9	-3.8	-3.9	-4.1
Total NO_x	-3.9	-4.0	-3.9	-3.8	-3.9	-4.1

6. If the proposed adjustment is accepted, Spain's NO_x emissions would be below their ceilings for all years, however for the years 2010, 2011 and 2012 only in combination with a complementary adjustment of road transport (approved in 2015) (see section 3).

7. **NH₃ emissions from Manure Management (3B, 3Da2a, 3Da3):** The ERT reviewed the information provided and concluded that for an assessment a detailed analysis is needed considering the impact of changing AD (e.g. increased N excretion, changes in AWMS) to resulting IEF. Consequently no decision could be made. The ERT recommends that Spain provides a detailed analysis which transparently demonstrates changes in methodologies caused by an improved understanding of the science for the quantification of the adjustment, and also that changes in activity data are excluded from this quantification. The ERT recommends that the EMEP Steering Body **postpones** the adjustments submitted for NH₃ emissions from sector *Manure Management (3B)* as well as *Animal manure applied to soils (3Da2a)* and *Urine and dung deposited by grazing animals (3Da3)* to allow Spain to prepare additional information to support their application. The following table provides a summary of the inventory adjustment that has an **open status** by the ERT.

Table ES3 Calculated impact (open status) of potential adjustment for sector manure management (3B), Animal manure applied to soils (3Da2a) and Urine and dung deposited by grazing animals (3Da3), Spain 2010–2015, NH₃

NFR source category(ies)	Thousands of tons (ktons) of NH ₃					
	2010	2011	2012	2013	2014	2015
3B Manure management	-101.0	-103.4	-100.5	-99.1	-100.7	-107.7
3Da2a Animal manure applied to soils*	40.5	38.8	38.5	38.3	40.2	41.4
3Da3 Urine and dung deposited by grazing animals*	22.8	22.0	22.0	22.2	23.0	23.3
Total NH₃	-37.6	-42.7	-40.0	-38.6	-37.6	-43.1

*In the original inventory NH₃ emissions from NFR categories *Animal manure applied to soils (3Da2a)* and *Urine and dung deposited by grazing animals (3Da3)* were considered under NFR category *Manure management (3B)*; in submission 2017 it is reported separately.

8. **NH₃ emissions from Inorganic N-fertilizers (3Da1):** The ERT concluded that the application for an NH₃ adjustment did not meet the requirements laid out in Executive Body decision 2012/12. In particular, the ERT noted that the application was not based on one of the three circumstances listed in paragraph 6 of decision 2012/3, as amended by decision 2014/1. The ERT therefore recommends that the EMEP Steering Body **REJECT** the adjustments submitted for NH₃ emissions from sector Inorganic N-fertilizers (3Da1).

9. In its application for an adjustment Spain indicated that its national totals of NH₃ emissions would be below their ceilings in accordance with the Gothenburg Protocol for the years 2011, 2012 and 2013, if the proposed NH₃ adjustments are accepted. Despite the adjustment, NH₃ emissions ceilings are still exceeded for the years 2010, 2014 and 2015.

10. **Adjustments approved in 2016:** The ERT has undertaken a full assessment of NO_x adjustments for the sectors road transport (1A3bi and 1A3biii) previously accepted in 2016 and recommends that the EMEP Steering Body continue accept these adjustments.

Table ES4: Impact of all accepted inventory adjustments on national emissions, Spain, 2010 and 2015, NO_x

NO _x	GP Emission Commitment (kt)	2010 Emission reported in 2017 (kt)	2010 Emission (adjusted) (kt)	Difference (%)	2015 Emission reported in 2017 (kt)	2015 Emissions (adjusted) (kt)	Difference (%)
NEW 2017	847	981.9*	978.0	-0.4 %	840.7*	836.6	-0.5 %
approved 2016	847	981.9*	849.4*	-13%	840.7*	750.7*	-10.7%
NO_x Total	847	981.9*	845.5*	-14%	840.7*	747.3*	-11.1%

* Spanish emissions for compliance do not include emissions from the Canary Islands

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1 Introduction and Context

11. 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 targets¹. 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:

- a) Emission source categories are identified that were not accounted for at the time when the emission reduction commitments were set; or
- b) 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
- c) 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 as amended by the Decision 2014/1 of the Executive Body of the CLRTAP, applications for adjustments that are submitted by Parties are subject to an expert review². 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 experts³ 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.

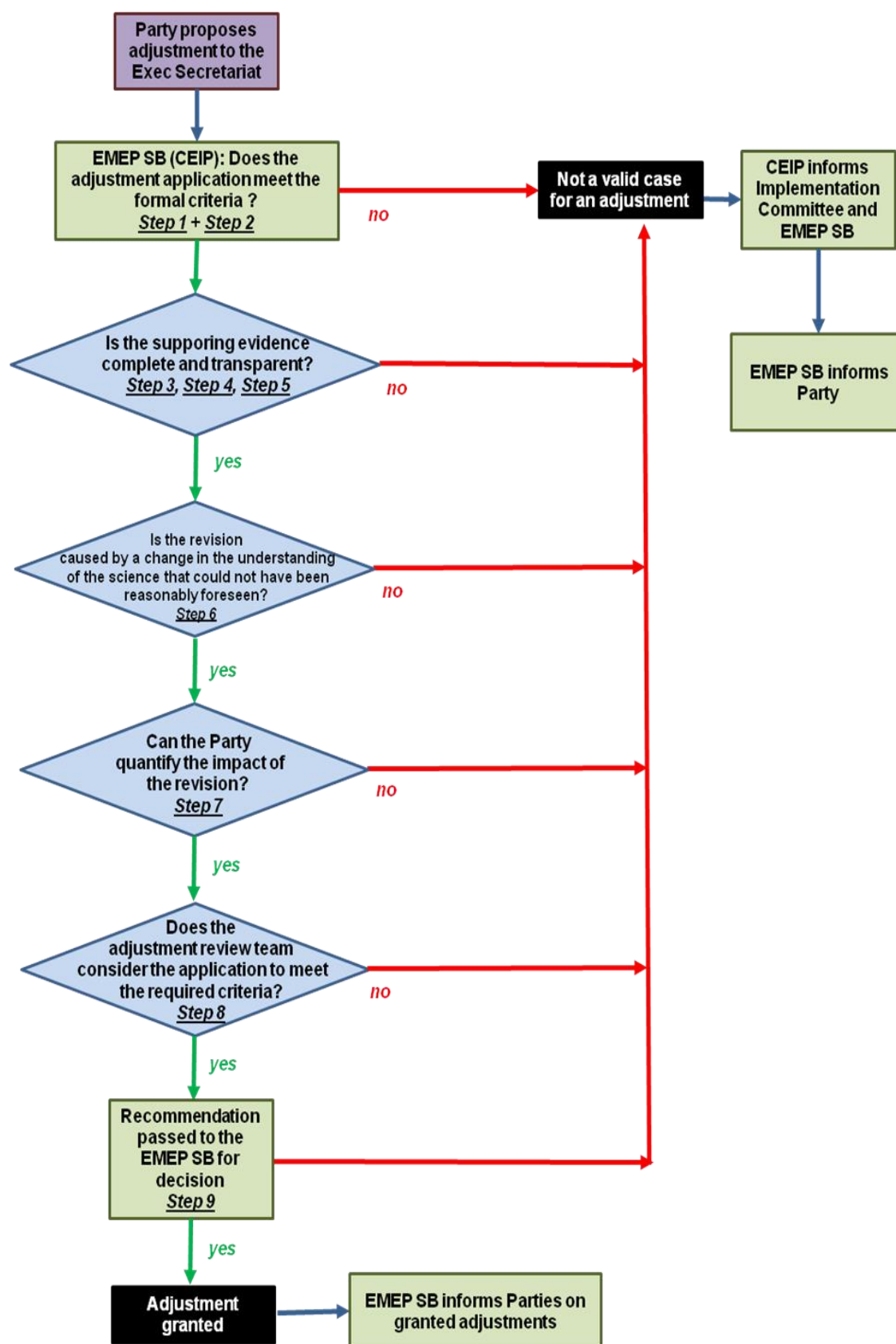
15. The flow diagram below outlines the different stages of the technical review. The following sections of this report are structured in the same way, and describe in detail the findings of the ERT at each of the decision gates in the process.

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

² 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 EB decision 2012/3 and the further guidance in EB decision 2012/12 as amended by EB decision 2014/1 and Technical guidance document ECE/AB.Air/130

³ http://www.ceip.at/fileadmin/inhalte/emep/pdf/2017/0_Roster_2017.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. Spain notified the Convention Secretariat through the Executive Secretary of its intention to apply for an adjustment on 16/02/2017, and thus after the legal deadline of 15 February. Supporting information requested by Decision 2012/12 amended by Decision 2014/1 was provided both as separate documents and as part of the Informative Inventory Report by 14 resp. 17 March (IIR) 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 of this report lists the documentation provided by the Party.

17. Spain submitted new application for emissions adjustments to **NO_x** for 2010-2015 for the following sectors:

- a) Manure management (3B1a, 3B1b, 3B2, 3B3, 3B4d, 3B4e, 3B4f, 3B4gi, 3B4gii and 3B4giv; henceforth referred as 3B).

18. Spain submitted an application for emissions adjustments to **NH₃** for 2010-2015 for the following sectors:

- a) Manure management (3B) and
- b) Agricultural soils (3Da1, 3Da2a, 3Da3).

19. Spain does not comply with its emission reduction commitments listed in Annex II of the Gothenburg Protocol (paragraph 1 of Decision 2012/3).

20. Spain did provide 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.

21. Spain did not include information on when it will meet its emission ceiling for NH₃ and for NO_x based on emission projections without the adjustment in the supporting documentation.

2.2 Manure Management (3B), NO_x

2.2.1 Assessment of Consistency with Requirements of EB Decision 2012/3 as amended by EB Decision 2014/1

22. Spain submitted an application on adjustments for *NO_x emissions* from sector *Manure Management* (NFR categories 3B1a, 3B1b, 3B2, 3B3, 3B4d, 3B4e, 3B4f, 3B4gi, 3B4gii and 3B4giv, henceforth referred as 3B) based on new source of emissions.

23. The ERT noted that no methodologies for the estimation of NO_x emissions from manure management were included in the EMEP/CORINAR Atmospheric Emission Inventory Guidebook 1999⁴ (1999 Guidebook). It was concluded that the supporting evidence provided does comply with the criteria presented in decision 2012/3, and that the circumstances on which the adjustment is

⁴ Technical report No. 30 (Copenhagen, European Environment Agency, 1999). Available from <http://www.eea.europa.eu/publications/EMEPCORINAIR>.

based could not have been reasonably foreseen by the Party when the emission ceilings were established for 2010.

24. In its submission in 2017, Spain reported *NO_x emissions from sector 3B* for the first time. Calculations are based on the EMEP/EEA air pollutant emission inventory guidebook 2016⁵ (2016 Guidebook) which provides new EFs for animal husbandry and manure management (3.B). In its adjustment application (Informative Inventory Report, chapter 11), Spain provided specific information to support its application for an adjustment. The adjustment application for NO_x emissions from source category Manure Management (3B) is defined as being equal to the sectoral emissions, in agreement with the methods for quantifying an adjustment presented in the Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). Thus, the expert review team was able to deduce the adjustment values, even though the methodological descriptions in the Informative Inventory Report were not fully transparent.

25. The ERT is therefore of the opinion that the application does meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP, and recommends that the EMEP Steering Body ACCEPT this adjustment application.

2.2.2 Assessment of the Quantification of the Impact of the Revision

26. The adjustment application process requires that Spain submit a quantification of the impact of the adjustment for which an application has been submitted. Table 3 provides an overview of the NO_x adjustment application of Spain in the Agriculture sector.

Table 3: Spain's NO_x Adjustment Application for Agriculture (kt)

Reference number	Pollutant	NFR14	unit	2010	2011	2012	2013	2014	2015
Spain/2017/3B	NO _x	3B	kt	-3.9	-4.0	-3.9	-3.8	-3.9	-4.1
	NO _x	Total	kt	-3.9	-4.0	-3.9	-3.8	-3.9	-4.1

27. In its application for an adjustment of NO_x, Spain emissions would be below their ceilings for all years, however for the years 2010, 2011 and 2012 only in combination with a complementary adjustment of road transport (approved in 2015).

2.3 Manure Management (3B) and Agricultural Soils (3D), NH₃

28. In its 2017 submission, Spain improved its methodologies for calculation of NH₃ emissions from the manure management (3B) and agricultural soils (3D) sectors, specifically for source categories inorganic N-fertilizers (3Da1), animal manure applied to soils (3Da2a) and urine and dung deposited by grazing animals (3Da3). This improvement is based on the 2016 Guidebook, which provides new emission factors for animal husbandry, manure management and agricultural soils.

⁵ Technical report No. 21/2016 (Luxembourg, Publications Office of the European Union, 2016). Available from <https://www.eea.europa.eu/publications/emep-eea-guidebook-2016>.

29. 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 noted that the methodologies used in the original air emission inventory of Spain used for determining NH₃ emissions from manure management and agricultural soils were not based on the latest available guidance at the time when NH₃ emissions ceilings were set.

30. In its Informative Inventory Report, chapter 11 (Adjustments), Spain provided detailed documentation of the methodologies used at the time when emission ceilings were set. Emission calculations were based on the CORINAIR Inventory-Default Emissions Factors Handbook of January 1992⁶. However, the methods for quantifying an adjustment are presented in the Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). This explains that for quantifying an adjustment, the original methodology is taken from the 1999 Guidebook, so that the quantification of the adjustment represents the change in the scientific understanding (irrespective of the methodologies that were used by the country at that time).

31. 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 4 provides an overview of the NH₃ adjustment applications of Spain in the Agriculture sector.

Table 4: Spain's NH₃ Adjustment Application for Manure Management (3B) and Agricultural Soils (3Da1, 3Da2a, 3Da3) (kt), 2010-2015

Reference number	Pollutant	NFR14	unit	2010	2011	2012	2013	2014	2015
Spain/2017/3B	NH ₃	3B Manure management*	kt	-101.0	-103.4	-100.5	-99.1	-100.7	-107.7
Spain/2017/3Da1	NH ₃	3Da1 Inorganic N-fertilizers	kt	-45.2	-40.6	-40.8	-48.1	-57.9	-51.8
Spain/2017/3Da2a	NH ₃	3Da2a Animal manure applied to soils	kt	40.5	38.8	38.5	38.3	40.2	41.4
Spain/2017/3Da3	NH ₃	3Da3-Urine and dung deposited by grazing animals	kt	22.8	22.0	22.0	22.2	23.0	23.3
	NH ₃	Agriculture TOTAL	kt	-82.8	-83.3	-80.7	-86.7	-95.5	-94.9

* In the original inventory, NH₃ emissions from NFR categories Animal manure applied to soils (3Da2a) and Urine and dung deposited by grazing animals (3Da3) were considered under NFR category Manure management (3B); in the 2017 submission it is reported separately.

32. Spain indicated in its application for an adjustment that its national totals of NH₃ emissions would be below their ceilings in accordance with the Gothenburg Protocol for the years 2011, 2012

6 Commission of the European Community, ed. (Paris, Centre Interprofessional Technique d'Études de la Pollution Atmosphérique, 1992).

and 2013, if the proposed adjustments are accepted. Despite the proposed adjustment, NH₃ emissions ceilings are still exceeded for the years 2010, 2014 and 2015.

In the following sections 2.3.1 and 2.3.2 detailed explanations and the conclusions of the ERT regarding the NH₃ adjustment application are provided separately for

- a. NH₃ emissions from Manure Management (3B) and also considering emissions reported under category Animal manure applied to soils (3Da2a) and Urine and dung deposited by grazing animals (3Da3) and for
- b. NH₃ emissions from Inorganic N-fertilizers (3Da1).

2.3.1 Manure Management (3B), NH₃

2.3.1.1 Assessment of Consistency with Requirements EB Decision 2012/3 as amended by EB Decision 2014/1

33. For NH₃ calculations within source category 3B, Spain used global-total emission factors per animal category including emissions from stable, application and meadow. Thus, the adjustment application provided for manure management also considers emissions reported in the 2017 submission under the categories animal manure applied to soils (3Da2a) and urine and dung deposited by grazing animals (3Da3). The chosen approach for NH₃ estimation corresponds to a tier 1 methodology. However, for key categories, best practice requires higher tier methods to be used.

34. In its response to a question of the ERT Spain submitted data on annually changing nitrogen (N) excretion amounts from animal livestock. Productivity (milk yields) and N excretion (Nex) from dairy cattle significantly increased since the time the ceilings were set (from 86.13 kg Nex in the year 2000 to 110.74 kg Nex in 2015). The expert review team notes that these are not changes which are considered to be valid cases for an adjustment, and the impact of these changes therefore need to be removed from an adjustment quantification.

35. With the Tier 1 approach, the emission factors do not consider increased productivity and changing farming practices. It is therefore not possible to separate the impacts of the changes in the scientific understanding from changes to e.g. nitrogen excretion values, changing farming practices and changes to animal waste management systems which are not considered to be changes that can be included in an adjustment application or quantification. To undertake the calculations to quantify the adjustment, a detailed analyses considering the impact of these effects is therefore necessary.

36. The ERT recommends that Spain provides a detailed analysis which transparently demonstrates changes in methodologies caused by an improved understanding of the science for the quantification of the adjustment, and also that changes in activity data are excluded from this quantification. In the meantime, the expert review team recommends that the EMEP Steering Body **postpone** the adjustments submitted for NH₃ emissions from sector Manure Management (3B), Animal manure applied to soils (3Da2a) and Urine and dung deposited by grazing animals (3Da3) to allow Spain to prepare additional information to support its application.

2.3.1.2 Assessment of the Quantification of the Impact of the Revision

37. 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 5 provides an overview

of the NH₃ adjustment applications of Spain for NH₃ emissions from Manure management (3B) that is recommended to be postponed.

Table 5: Spain's NH₃ Adjustment Application for Manure Management (3B), Animal manure applied to soils (3Da2a) and Urine and dung deposited by grazing animals (3Da3), 2010-2015

Reference number	Pollutant	NFR14	unit	2010	2011	2012	2013	2014	2015
Spain/2017/3B	NH ₃	3B Manure management	kt	-101.0	-103.4	-100.5	-99.1	-100.7	-107.7
Spain/2017/3Da2a	NH ₃	3Da2a Animal manure applied to soils*	kt	40.5	38.8	38.5	38.3	40.2	41.4
Spain/2017/3Da3	NH ₃	3Da3 Urine and dung deposited by grazing animals	kt	22.8	22.0	22.0	22.2	23.0	23.3
	NH ₃	TOTAL	kt	-37.6	-42.7	-40.0	-38.6	-37.6	-43.1

**In the original inventory NH₃ emissions from NFR categories Animal manure applied to soils (3Da2) and Urine and dung deposited by grazing animals (3Da3) were considered under NFR category 3.B Manure management; in submission 2017 it is reported separately.*

2.3.2 Inorganic N-fertilizers (3Da1), NH₃

2.3.2.1 Assessment of Consistency with Requirements EB Decision 2012/3 as amended by EB Decision 2014/1

38. For NH₃ calculations within sector Inorganic N-fertilizers (3Da1) Spain used an average default EF of 40 kg NH₃ per ton of total nitrogen in fertilizer. This emission factor was recommended in the CORINAIR Inventory-Default Emissions Factors Handbook of January 1992. However, the methods for quantifying an adjustment are presented in the Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications (ECE/EB.AIR/130). This explains that the original methodology is taken from the 1999 version of the EMEP/CORINAR Inventory Guidebook 1999, so that the quantification of the adjustment represents the change in the scientific understanding (irrespective of the methodologies that were used by the country at that time). In addition, the expert review team noted that for key categories higher Tier methods should be applied. Estimates should reflect different fertiliser types used in the country. The detailed methodology presented in the 1999 Guidebook is therefore the appropriate methodology for use as the original methodology.

39. The expert review team made an assessment of the adjustment using the detailed methodology in the EMEP/CORINAIR Inventory Guidebook 1999 as the original methodology and concluded that the adjustment would increase the emission estimates of NH₃. One reason is the high share of urea fertilizers (ca. 30%) used in Spain with high EFs provided in the 1999 Guidebook. Consequently, the expert review team concluded that the application for an NH₃ adjustment did not meet the requirements laid out in Executive Body decision 2012/12. In particular, the ERT noted that the application did not follow the methods for quantifying an adjustment presented in the Technical

Guidance. The ERT therefore recommends that the EMEP Steering Body **reject** the adjustments submitted for NH₃ emissions from the Inorganic N-fertilizers sector (3Da1).

2.3.2.2 Assessment of the Quantification of the Impact of the Revision

40. 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 6 provides an overview of the NH₃ adjustment application of Spain for Inorganic N-fertilizers (3Da1) that is recommended to be rejected.

Table 6: Spain's NH₃ emissions from 3Da1 Inorganic N-fertilizers, 2010-2015

Reference number	Pollutant	NFR14	unit	2010	2011	2012	2013	2014	2015
Spain/2017/3Da1	NH ₃	3Da1 Inorganic N-fertilizers	kt	-45.2	-40.6	-40.8	-48.1	-57.9	-51.8
Spain/2017/3Da1	NH₃	TOTAL	kt	-45.2	-40.6	-40.8	-48.1	-57.9	-51.8

3 Assessment of Previously Approved Adjustments

41. In addition to adjustment applications submitted in 2017, the reviewers assessed previously approved adjustments. Spain has previously approved adjustments for **road transport (1A3bi and 1A3biii), NO_x in 2016**.

42. The reviewers undertook a full and thorough assessment of the adjustment for Spain, NO_x emissions for the passenger cars (1A3bi) and heavy duty vehicles (1A3biii) sectors, originally approved in 2015. Spain declares that the methods and criteria used for the calculation of NO_x emissions are the same as in 2015 (Copert 4 v.10 and EMEP/EEA emission inventory guidebook 2013), when the original adjustments were approved, exception for NO_x emissions from 1A3bi for the years 2010, 2011 and 2012, recalculated in order to consider updated mileage data, in particular urban mileage, also in consideration of the new EMEP geographical coverage, taken into account.

43. The adjustment for road transport has been recalculated and it is more incisive in 2017, respect to adjustment application approved in 2016, adjustment values differ about 4.3% in 2010, 3.5% in 2011 and 3.7% in 2012. Respect to annual emissions of NO_x, the requested adjustment accounts on average for about 13%. The reviewers concluded that the adjustment met all of the requirements laid out in Executive Body decision 2012/12 and in the Technical Guidance. More specifically, the adjustment is with no amendments to the methodology.

4 Conclusions and Recommendations

44. The ERT has undertaken a full and thorough assessment of the applications for adjustments of NH₃ and NO_x emissions inventory that was submitted by Spain for the following source sectors:

- a. Manure management (3B), NO_x
- b. Manure management (3B) and Agricultural Soils (3D), NH₃

45. The review of the submitted applications 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.

46. Table 7 below provides a summary of the adjustment applications received from Spain, and the subsequent recommendations made by the ERT to the EMEP Steering Body.

Table 7: Recommendations from the ERT to the EMEP Steering Body

Country	Sector	NFRs	Pollutant	Years	ERT Recommendation
Spain	Agriculture	3B	NO _x	2010 - 2015	<i>Accept</i>
Spain	Agriculture	3B	NH ₃	2010 - 2015	<i>Open status</i>
Spain	Agriculture	3Da1	NH ₃	2010 - 2015	<i>Reject</i>
Spain	Agriculture	3Da2a, 3Da3	NH ₃	2010 - 2015	<i>Open status</i>

47. **Manure Management (3B), NO_x:** The ERT concluded that the application regarding NO_x from Manure Management (3B) does meet all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP, and therefore recommends that the EMEP Steering Body **accept** this adjustment application.

48. **Manure Management (3B), Animal manure applied to soils (3Da2a), Urine and dung deposited by grazing animals (3Da3); NH₃:** The ERT concluded that the application regarding NH₃ from *Manure Management (3B)*, *3Da2a Animal manure applied to soils* and *3Da3 Urine and dung deposited by grazing animals* needs to be analysed in more detail considering the impact of changing AD (e.g. increased N excretion, changes in AWMS) to resulting IEF. Within the available resources and time constraints, the expert review team has not been able to determine whether the basis for some of the submitted NH₃ applications for the manure management meets all of the requirements laid out in Decision 2012/12 of the Executive Body of the CLRTAP. The ERT recommends that Spain provides a detailed analysis which transparently demonstrates changes in methodologies caused by an improved understanding of the science for the quantification of the adjustment, and also that changes in activity data are excluded from this quantification. The ERT therefore recommends that the EMEP Steering Body assign such adjustment application an **open status** in order to allow Spain to prepare additional information to support their application.

49. **Inorganic N-fertilizers (3Da1), NH₃:** The ERT concluded that the application for an NH₃ adjustment of *Inorganic N-fertilizers (3Da1)* did not meet the requirements laid out in Executive

Body decision 2012/12. In particular, the ERT noted that the application was not based on one of the three circumstances listed in paragraph 6 of decision 2012/3, as amended by decision 2014/1. The ERT therefore recommends that the EMEP Steering Body **reject** the adjustments submitted for NH₃ emissions from sector 3Da1 Inorganic N-fertilizers.

50. Spain indicated that its ***national totals of NH₃ emissions*** would be below their ceilings in accordance with the Gothenburg Protocol for the years 2011, 2012 and 2013, if the proposed adjustments were accepted. However, despite the adjustment, NH₃ emissions ceilings are still exceeded for years 2010, 2014 and 2015. In its application for an adjustment of ***NO_x emissions*** would be below their ceilings for all years; however for the years 2010, 2011 and 2012 this would be true only in combination with a complementary adjustment of road transport (approved in 2015).

51. The adjustment applications from Spain have been assessed in a way that is fully consistent with review of adjustment applications from other Parties to the CLRTAP, by following relevant EMEP EB Decisions and published technical guidance.

52. **Previously approved NO_x adjustments:** The reviewers have undertaken a full and thorough assessment of the adjustments previously accepted in 2015 and 2016, and recommend that the EMEP Steering Body **continue to accept** these adjustments.

5 Information Provided by the Party

53. Table 5 lists the information provided by Spain in its adjustment application. The information provided by the Party can be downloaded from the CEIP website⁷.

Table 8: Information Provided by the Party

Filename	Short description of content
SPAIN-2017-CLRTAP-Adjustment Application-1-Notification letter.pdf	The notification of a 2017 adjustment application
SPAIN-2017-CLRTAP-Adjustment Application-3.2-NH ₃ -Agriculture.pdf	PDF file describing the proposed adjustment for NH ₃ , including: <ul style="list-style-type: none"> • Reasons for adjustment of emission inventory for NH₃ emissions • Compliance check
SPAIN-2017-CLRTAP-Adjustment Application-3.1-NO _x -Agriculture.pdf	PDF file describing the proposed adjustment for NO _x , including: <ul style="list-style-type: none"> • Reasons for adjustment of emission inventory for NO_x emissions • Compliance check
SPAIN-2017-CLRTAP-Adjustment Application-2-Annex_II_to_ECE-EB.Air130-corrected.xlsx	MS Excel file with detailed data underlying the proposed adjustment applications for <ul style="list-style-type: none"> • NH₃ from (a) 3.B and (b) 3Da1, 3Da2a, 3Da3 • NO_x from 3.B
SPAIN_2017-CLRTAP_-Inventory_Submission-2-IIR.pdf	IIR 2017, pdf-document; here especially: Chapter 11. Adjustments

54. The ERT found it necessary to ask the Party for further information. The information provided is described in Table 9 below.

Table 9: Additional Information Provided by the Party

Filename	Short description of content
Spain-NH ₃ -AGRI-Adjustment Review-Info requested 19.06.20174.xlsx	Information on: <ol style="list-style-type: none"> N excretion values per animal category and year Milk yields per dairy cow and year Animal waste management system (AWMS) distribution (%) per animal category and year NH₃ IEFs with and without abatement measures (3.B Manure Management) NH₃ emissions with and without abatement measures (3.B Manure Management) N amounts (kg N) per type of inorganic N fertilisers Applied EFs (ph normal/high, choice of climate) (3Da1 Inorganic N-fertilizers) NH₃ emissions with and without abatement measures (3Da1 Inorganic N-fertilizers)

⁷ http://www.ceip.at/ms/ceip_home1/ceip_home/adjustments_gp/

Filename	Short description of content
	<ul style="list-style-type: none">i. N amounts (kg N) of animal manure applied to soils (3Da2a Animal Manure applied to soils)j. NH₃ IEFs with and without abatement measures(3Da2a Animal Manure applied to soils)k. NH₃ emissions with and without abatement measures (3Da2a Animal Manure applied to soils)l. N amounts excreted from grazingm. Cattle population

6 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

Decision 2014/1 (ECE/EB.Air/127/Add.1): Improving the 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/

EMEP/EEA Air Pollutant Emission Inventory Guidebook 2016

<https://www.eea.europa.eu/publications/emep-eea-guidebook-2016>

EMEP/CORINAIR Air Pollutant Emission Inventory Guidebook 1999, 2nd edition

<http://www.eea.europa.eu/publications/EMEPCORINAIR>

2014 Reporting Guidelines (ECE/EB.AIR/125) for Estimating and Reporting Emission Data under CLRTAP http://www.ceip.at/ms/ceip_home1/ceip_home/reporting_instructions/

ECE/EB.AIR/130: Technical Guidance for Parties Making Adjustment Applications and for the Expert Review of Adjustment Applications, 14 April 2015

The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone
http://www.unece.org/env/lrtap/multi_h1.html