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Report for the Stage 3 *ad-hoc* review of emission inventories submitted under the UNECE LRTAP Convention:

STAGE 3 REVIEW REPORT

LATVIA

CONTENT

INTRODUCTION

The mandate and overall objectives for the emission inventory review process under the LRTAP Convention is given by the UNECE document '*Updated methods and procedures for the technical reviews of air pollutant emission inventories reported under the Convention*'[1] – hereafter referred to as the 'Review guidelines 2018'.

1.   Paragraph 7 (c) of the 'Review guidelines 2018' defines that stage 3 reviews may be annual centralized reviews or ad hoc reviews. Paragraph 18 of the 'Review guidelines 2018' further specifies that such ad hoc reviews could, for instance, focus on specific source sectors, specific pollutants such as heavy metals or persistent organic pollutants, gridded and projections data, or on other areas as requested by the Implementation Committee and that where appropriate, ad hoc reviews could be conducted in line with the present Methods and Procedures for the In-depth (Stage 3) review.

2.   At its seventh joint session in September 2021 the Steering Body and the Working Group approved the plan to perform (in 2022) an in-depth review of $PM_{2.5}$ emissions from residential heating and road transport, with a special focus on the topic of '*condensable particulate matter*' and a follow-up review of the implementation of recommendations given as part of the review carried out in 2021. The Parties reviewed in 2021 are Kazakhstan, Liechtenstein, Monaco and Montenegro.

3.   Particulate matter can exist as solid or liquid matter (the "filterable" portion) or as gases (the "condensable" portion). Condensable particulate matter is vapour phase at stack conditions, but condenses and/or reacts upon cooling and dilution upon discharge into ambient air to form solid or liquid PM. All condensable PM is assumed to be in the $PM_{2.5}$ size fraction[2]. The inclusion of the condensable component of $PM_{2.5}$ emissions can have a big impact on the emission estimate for certain sources[3].

4.   This ad-hoc review, has assessed $PM_{2.5}$ emission estimates with a special focus on the topic of '*condensables*' for the years 2000 to 2020.

5.   This report covers the results of the stage 3 centralised review (ad hoc review) 2022 of the UNECE LRTAP Convention of Latvia coordinated by the EMEP emission centre CEIP acting as review secretariat. The review took place between April and June 2022 and was performed as desk review with an in person meeting between 30 of May 2022 and 3 June 2022. The following team of nominated experts from the roster of experts performed the review.

Ad hoc review - condensables

1A3b Road Transport: Gudrun Stranner, Katrina Young, Magdalena Zimakowska-Laskowska, Martina Toceva and Rebecca Rose

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1 Decision 2018/1 adopted by EB: *Updated methods and procedures for the technical review of air pollutant emission Inventories reported under the Convention.* ECE/EB.AIR/142/Add.1
https://unece.org/fileadmin/DAM/env/documents/2018/Air/EB/ECE_EB.AIR_142_Add.1-1902937E.pdf

2 Condensable Particulate Matter Definition | Law Insider

3 For more technical details please refer to the EMEP/EEA Guidebook (https://www.eea.europa.eu/publications/emep-eea-guidebook-2019) or the report 'How should condensables be included in PM emission inventories reported to EMEP/CLRTAP?' https://emep.int/publ/reports/2020/emep_mscw_technical_report_4_2020.pdf

1A4bi Residential: stationary: Aleksandra Nestorovska-Krsteska, André Amaro, Benjamin Cuniasse, Canan Esin Köksal, Damian Zasina, Laureta Dibra, Marion Pinterits, Sam Gorji and Wolfgang Schieder

6.   Kristina Saarinen and Jeroen Kuenen were the lead reviewers. The review was coordinated by Sabine Schindlbacher (EMEP Centre on Emission Inventories and Projections - CEIP).

7.   The review was performed on the basis of CLRTAP emission data officially reported by Latvia, due by 15 February 2022 for emission inventories. The Informative Inventory Reports (IIR), reported due 15 March 2022 under the CLRTAP, informed the review.

8.   The emission inventory of Latvia was received on 15 February 2022 thus by the deadline of 15 February, with resubmissions on 15 March 2022 and 13 April 2022. The Informative Inventory Report was received on 15 March 2022 and thus by the deadline of 15 March, with resubmission on 13 April 2022.

RECOMMENDATIONS FOR IMPROVEMENTS TO THE PARTY

1.A.4.b.i Residential: stationary

1.   Latvia use (mostly) a Tier 2 methodology based on the EMEP/EEA Guidebook 2019 for calculating $PM_{2.5}$ emissions from '1A4bi – Residential: stationary'.

2.   . As '1A4bi – Residential: stationary' is a key category, the ERT recommends Latvia to include a detailed methodological description to improve the transparency of the documentation, in the next IIR submission.

3.   The activity data is taken from official statistics. The ERT notes that the activity data is described transparently in the Informative Inventory Report. The fuels used under NFR 1A4bi include natural gas, solid fuel and biomass and a detailed description is provided in the IIR (pp. 66, 206). Also, according to the national experts, official statistics include collected wood [4].

4.   According to the country experts, the Latvian Statistical Office distinguishes the following categories for wood: firewood, wood waste, wood chips, wood briquette, and pellet wood. The ERT recommends Latvia to include this information on wood categories used in the residential sector 1A4bi inventory in the next IIR submisssion.

5.   The total fuel consumption for each fuel type is not stratified into different appliance types e.g. boilers and stoves, in a consistent and complete manner, however, this is not sufficiently documented in the IIR. The ERT recommends Latvia to collect more accurate data especially on the wood combustion appliances used in the country, covering the appliance type and age. The ERT also recommends Latvia to provide a detailed documentation on data and methods used in the inventory as well as the data sources used and frequency of data collection, in the next IIR submission.

6.   The inventory covers partly the condensable component of PM (Table 1).

Table 1: Inclusion of condensables per fuel type

Fuel Type	Includes the condensable component of $PM_{2.5}$ emissions
Biomass	Yes
Coal	Unclear – Guidebook 2019
Liquid	Unclear – Guidebook 2019
Gaseous	Unclear – Guidebook 2019

7.   The ERT notes that the time series is consistent.

8.   Latvia did not submit gridded data and there is no information about the methodology of gridding $PM_{2.5}$ emissions from NFR 1A4bi. The ERT recommends Latvia to report gridded emission data in line with Reporting Guidelines paragraph 28 in the next due submission.

9.   The Party does not list any improvement plants regarding residential combustion in the IIR.

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[4] Ways of obtaining fuelwood in households is available
 https://data.stat.gov.lv/pxweb/en/OSP_OD/OSP_OD__apsekojumi__energ_pat/EPM393.px/

1.A.3.b.i-iv Road transport exhaust emissions

10.   Latvia calculates particle emissions from the transport sector using COPERT version 5.5.1. All emission factors in COPERT are based on the Tier 3 methodology of. the 2019 EMEP/EEA Guidebook. The IIR provides details of the main features of the model. The IIR describes the calculation of transport emissions transparently.

11.   The activity data is taken from official statistics. The ERT recommends Latvia to provide the link or the reference to the activity data along with the year of publication of the activity data.

12. $PM_{2.5}$ emissions from road transport exhaust include the condensable component of $PM_{2.5}$ emissions. The ERT recommends that Latvia include a statement in the road transport chapter of the IIR confirming the inclusion of the condensable component of $PM_{2.5}$.

13.   The ERT notes that the method to calculate emissions is not documented transparently in the IIR and recommends Latvia to include further information about the traffic conditions such as the average speed per road class and mileage share per road class in the next IIR submission.

14.   The time series is consistent.

15.   Latvia lists no specific planned improvements in their 2022 IIR for particle emissions from sectors 1A3bi-iv

REVISED ESTIMATES AND TECHNICAL CORRECTIONS CONSIDERED AND/OR CALCULATED BY ERT

16.   In the Appendix of the 'EMEP/UNECE Review Guidelines 2018[5]' it is stated that if the ERT considers that when emissions are significantly under- or overestimated, then during the review, the Party is invited to submit "Revised Estimates" that address the issue raised. Should the Party decline to do this, or should it not be possible to agree on the quantification of the Revised Estimates, then the ERT may calculate a "Technical Correction" in the absence of an updated emission estimate being provided by the Party itself. The threshold for significance for a technical correction for the in-depth review in 2022 was set at 2% of the national total, i.e. findings identified which result in an over- or under-estimate of emissions of more than 2% of the national total can result in a Technical Correction. The methods for calculating the Technical Corrections are set up in the "Review Guidelines 2018" and use the EMEP/EEA Emission "Inventory Guidebook" as a reference for methods and emission factors.

17.   Latvia did not provide any revised estimates and the ERT did not calculate technical corrections.

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5 https://www.ceip.at/fileadmin/inhalte/ceip/3_review/advance_version_ece_eb.air_142_add.1.pdf

LIST OF MATERIAL PROVIDED TO ERT

1. Latvia   Stage 2 S&A report
2. Latvia   Stage 1 report 2022
3. Latvia   IIR 2022
4. NFR table 2022 submitted by Latvia

LIST OF ADDITIONAL MATERIAL PROVIDED BY THE COUNTRY DURING THE REVIEW

5. Responses to preliminary question raised prior to the review:
6. Response to questions raised during the review