

WASTE EXPERT PANEL

APRIL 2023

AGENDA

- 13:00 – 14:30 **Updates/Improvements on the EMEP/EEA GB (including Q&A)**
 - ✓ Update of the chapter **5A - Solid waste disposal** (Céline Guéguen)
 - ✓ Update of the chapter **5C1a - Municipal solid waste incineration** (Lucy Garland)
 - ✓ Update of the chapter **5C1bi - Industrial waste incineration** (Céline Guéguen)
 - ✓ Update of the chapter **5C1biii - Medical waste incineration** (Elisabeth Kampel)
 - ✓ Update of the chapter **5D - Wastewater handling** (Céline Guéguen)
 - ✓ Update of the chapter **5E - Other waste** (Adriana Gomez Sanabria)
- 14:30 – 15:00 **Identification of emerging waste treatments** to be considered in the Guidebook (discussion/survey)
- AOB & close

INTRODUCTION

Contributors : 4 volunteers

Types of issues :

- Misleading text (e.g. all waste chapters)
- Edits in the tables - titles, edits, values (few)
- Difficulties to identify the original sources (e.g. “2006 GB”)
- Values different from the original source (e.g. clinical waste, MSW)
- EF coming from the pre-2000 US-EPA (e.g. uncontrolled)
- No literature available (e.g. hazardous waste)
- T1 not adapted to incineration because of abatement technics

INTRODUCTION

Perimeter of the update :

- Implement the improvements identified in the improvements list (when possible)
- Improve any misleading or outdated text, complete the methodological description when necessary
- Check the EF tables, correct when necessary, update if possible
- Increase consistency among Incineration chapters (5C1a, 5C1bi, 5C1biii) – abatement efficiencies

No elaboration of new methodologies

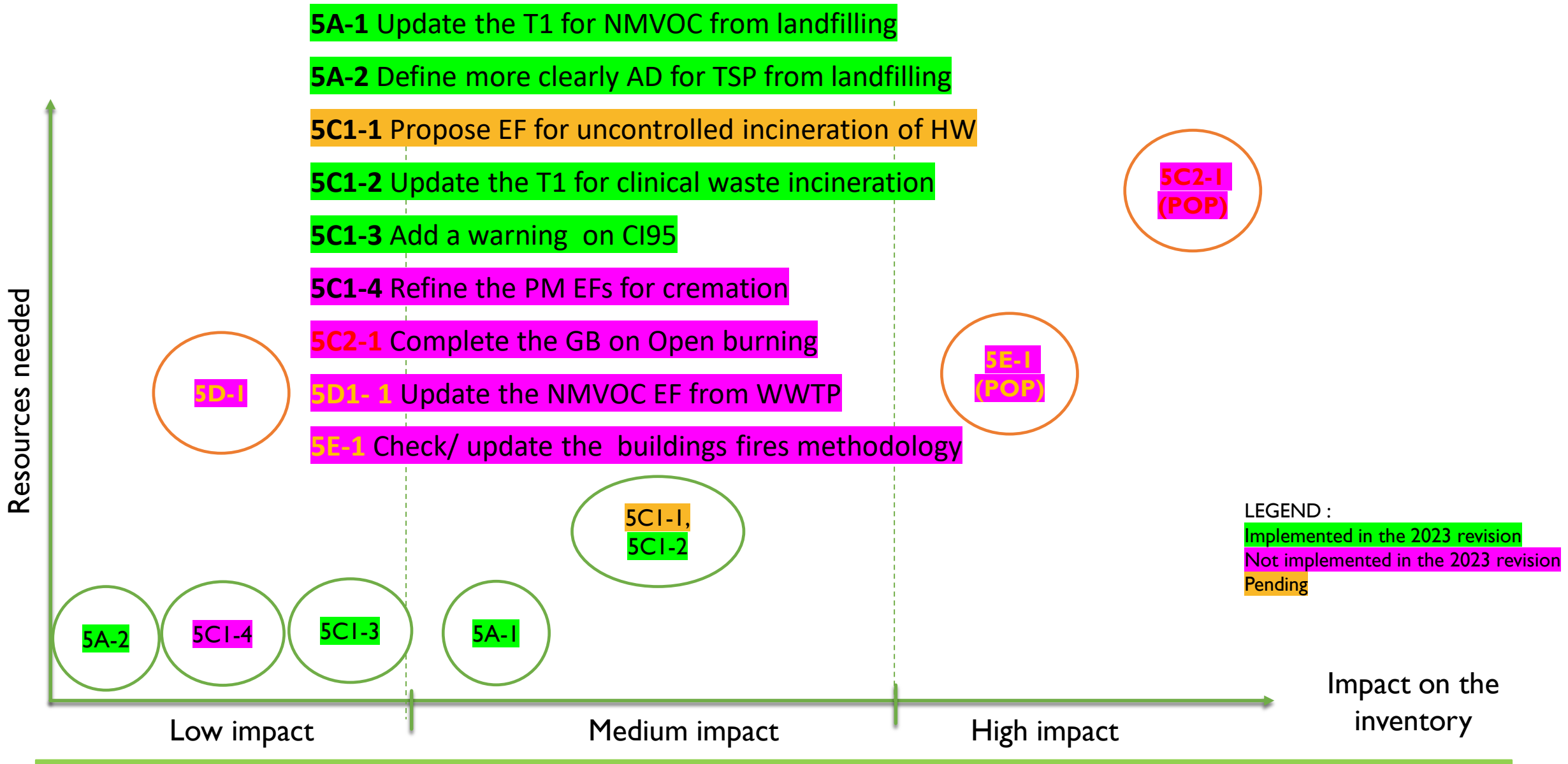
INTRODUCTION

Perimeter of the update :

➤ Updated chapters :

- ✓ 5A - Solid waste disposal
- ✓ 5C1a - Municipal solid waste incineration
- ✓ 5C1bi - Industrial waste incineration
- ✓ 5C1biii - Medical waste incineration
- ✓ 5D - Wastewater handling
- ✓ 5E - Other waste

➤ Other chapters (5B1, 5B2, 5C1bv, 5C2) were not updated



WASTE SECTOR

What changes in the 2023 GB ?

5A – Solid waste disposal

- ✓ NMVOC emissions from landfills
- ✓ PM emissions from mineral waste handling

5A – SOLID WASTE DISPOSAL (INCLUDING MINERAL WASTE HANDLING)

Summary of changes

- Clear distinction between the NMVOC methodology and the PM methodology
 - In the text description (especially regarding required AD)
 - In the EFs tables (providing 2 separate T1 EF tables)
- Regarding NMVOC methodology :
 - The T1 default EF is now expressed in terms of **g/m³ of landfill gas** (*prev. kg/Mg of waste*) – back to the 2009 EMEP/EEA GB value
 - An additional equation (equation 3) is proposed to derive the required AD (**Volume of landfill gas**) on the basis of CH₄ emissions reported to UNFCCC (assuming Normal Conditions of Temperature and Pressure)

5A – SOLID WASTE DISPOSAL (INCLUDING MINERAL WASTE HANDLING)

- Both updates are consistent with recommendations raised during the NECD reviews
- Many EU MS already apply a NMVOC T1 methodology consistent with the 2023 revision

Remaining improvements already identified :

- Include EFs for landfills flares (Improv. 5A-5)

5C1a – Municipal waste incineration

Lucy Garland

5C1b – Industrial waste incineration

- ✓ Emissions from hazardous waste incineration (5C1bii)
- ✓ Emissions from sewage sludge incineration (5C1biv)
- ✓ Emissions from other industrial waste incineration (5C1bi)

5C1 – INDUSTRIAL WASTE INCINERATION

Summary of changes – Text

- Improved any misleading or outdated text

Summary of changes – EFs, Abatement efficiency

- T1 PCDD-F EF has been updated to **10 µg I-TEQ/Mg waste** (*prev. 350 µg I-TEQ/Mg waste*) – applicable to industrial waste, hazardous waste and sewage sludge incineration
- T2 PCDD-F EF has been updated to **50 µg I-TEQ/Mg waste** for sewage sludge incineration (*prev. 4 650 µg I-TEQ/Mg waste*), to **40 mg I-TEQ/Mg waste** for hazardous waste incineration and **3,5 mg I-TEQ/Mg waste** for other industrial waste (UNEP 2013 – cas of minimal or no APC).
- Abatement efficiencies have been changes to be identical to the updated ones proposed for Municipal solid waste incineration

5C1 – INDUSTRIAL WASTE INCINERATION

Difficulty

- No EF for uncontrolled incineration of **hazardous waste** has been found (except for PCDD-F)
...which makes difficult to propose an accurate T2,
...and for countries to estimate reliable time series.
- No distinction possible between in-situ hazardous waste incineration (chemistry) and centralized plants

Remaining improvements already identified :

- Identify EF for uncontrolled incinerators of hazardous waste (Improv. 5C1-1)
- Distinction between in-situ incineration and centralized HW incineration plants(TBC)

5C1biii – Medical waste treatment

Elisabeth Kambel

5D – Wastewater treatment

- ✓ NH_3 emissions from dry toilets
- ✓ NMVOC emissions from WWTP

5D – WASTEWATER TREATMENT

Summary of changes - text

- Better description of the perimeter
 - From the wording “latrines” to the wording “dry toilets”
 - Clear distinction between dry toilets (no water flush, source of NH_3) and septic tanks (water flush, not source of NH_3)
 - Industrial and domestic wastewater volumes treated in-situ or in municipal WWTP

Summary of changes - EF

- None

5D – WASTEWATER TREATMENT

Remaining improvements already identified :

- Confirm/update the EFs from wastewater treatment plants (Improv. 5D-1)
- Risk of double NMVOC accounting with the solvent use sector* (Improv. 5D-2 NEW)

**NMVOC are not produced by the treatment process but they are generated by volatilisation of hydrocarbon present in the effluent*

5E – Other waste

- ✓ **Sludge spreading (pre 2023 GB)**
- ✓ **Car and building fires**

5E – OTHER WASTE

Modifications :

- Sludge spreading: Updates have been carried out for the sector. However, to increase consistency with GHG reporting, it was moved to the agricultural sector :
 - in terms of methodological description : additional N input to soils (chapter 3D Crop production and agricultural soils)
 - in terms of allocation (from 5E to 3Da2b – sewage sludge applied to soils)
- Car and household fires has been renamed to car and building fires as it covers all type of building infrastructure
- Emission factors have not been modified

WASTE SECTOR

What comes next ?

WASTE EXPERT PANEL WORKING PROCESS

List of improvements updated regularly:

- Findings from the NECD reviews
- Findings coming from other Expert Panels
- Findings coming from GB users, inventory compilers...

So, send **YOUR** findings (text edits, errors, possible improvements, needs...)

celine.gueguen2@gmail.com

PRELIMINARY IMPROVEMENTS IDENTIFIED

ID	Short description of the proposed improvement	Impact*	Status
5A-1	NMVOG (Accuracy) Update the default Tier I with the methodology recommended during ESD Reviews	Medium	Implemented
5A-2	TSP from waste handling (Transparency / Accuracy) Define more clearly associated AD	Low	Implemented
5A- 4	Verification of default EF		
5A-3	Case of landfills dedicated to Biological mechanical treatment (Accuracy)		Cancelled
5A-5	EF for landfills flares (completeness) Propose EF for flares		NEW - Not started

ID	Short description of the proposed improvement	Impact*	Status
5A-1	Clarification of EF unit (Transparency) Check and add in the AD description that it is wet basis	Medium	NEW - Not started

* *Expected impact on the national inventories*

PRELIMINARY IMPROVEMENTS IDENTIFIED

ID	Short description of the proposed improvement	Impact*	Ressources needed
5C1-1	5C1bi - All pollutants (Completeness / Accuracy) Identify EF for uncontrolled incinerators of hazardous waste (tier 2)	Medium	Pending
5C1-2	5C1biii – Medical waste (Completeness / Accuracy) Update the tier 1 for clinical waste incineration	Medium	Implemented
5C1-6	Update PM EFs (PM2,5 <> PM10)		
5C1-3	All sub-sectors - All pollutants (Completeness / Accuracy) Add a warning that when using concentration measurements to derive the mean annual EFs the confidence interval must not be subtracted	Medium	Implemented
5C1-4	5C1bv – PM EF from cremation(Accuracy) Refine the PM EFs (PM2,5 vs PM10)	Low	Not started ~ 1,5 men day
5C1-5	5C1a PM EF (Completeness / Accuracy) Refine the PM T1 EFs (PM2,5 vs PM10)	High	Checked and cancelled
5C1-7	5C1a Abatement efficiency (Transparency / Accuracy) Check the original reference ("guidebook (2006)" - update the Table 3-3 with data related to MSW incinerators	Medium	Implemented

PRELIMINARY IMPROVEMENTS IDENTIFIED

ID	Short description of the proposed improvement	Impact*	Resources needed
5C2-1	<p>Elaborate / complete the methodology (Completeness / Accuracy)</p> <p>Define of a more complete/relevant methodology related to open burning of waste (all types of waste, including mixed MSW waste, landfills fires)</p>	High	<p>Not started</p> <p>~ 15 men day</p>
5C2-2	<p>Check EF units (Transparency / Accuracy)</p> <p>Check the units (dry vs wet basis) in the reference document and update if appropriate</p>	High	<p>NEW - Not started</p>

PRELIMINARY IMPROVEMENTS IDENTIFIED

ID	Short description of the proposed improvement	Impact*	Status
5D-1	NMVOE EF (Accuracy) Confirm/update the EFs from wastewater treatment plants	Low	Not started ~ 5 men day
5D-2	Check risk of NMVOE double accounting (Accuracy) check with IPPU which emissions are already accounted for in the solvent use method (domestic, industrial etc.)	Low	NEW - Not started

ID	Short description of the proposed improvement	Impact*	Status
5E-1	Methodology proposed for building fires Check/ update the methodology proposed for building fires	High	Not started
5E-2	NH3 EF from sludge spreading Check and correct the NH3 EF if needed		Canceled
5E-3	EF from recycling activities : car shredding Define a methodology (PCDD-F emissions expected)	TBD	NEW - Not started
5E-4	EF for recycling or storage operations of equipment with PCBs Check literature and define a methodology	TBD	NEW - Not started

* *Expected impact on the national inventories*

INTERACTIVE SESSION : UPDATE THE IMPROVEMENT LIST

What are your needs /expectations from the Waste EP?

- Missing sources / Emergent sources / Misallocation ?

Ask for the floor or send a message in the chat

- You identified improvements / corrections ?
- You want to participate in the EP ?

Email to celine.gueguen2@gmail.com

INTERACTIVE SESSION

- New finding in the list of improvements :
 - Propose PCDD-F EF for recycling activity : car shuddering (5E-3)
 - Investigate PCBs emissions from fragmentizing operation of electrical equipment containing PCBs (From E&I EP - 5E-4)
- *From the meeting this morning :*
 - *...Improve POPs EF from waste incineration when possible*
 - *...Include solar cells recycling as a source of Selenium*
 - *...keep an eye on other POPs such as bromide substances (plastic incineration, car and building fires...)*

AOB AND CLOSING

What is next step ?

- Chapters finalised at the TFEIP meeting (subject to minor/editorial revisions)
 - Final editorial changes by 19th May
 - QA/QC final reviews by 26th May
- *Chapters that need discussion after the TFEIP meeting*
 - *Ad hoc group to meet within by 16th June*
- Updating EF database by 31st July
- Publication of updated GB chapters to website by 31st July

THANK YOU