Chapter 8.1 - Recalculations

Generally, improvement of the emission inventory is an ongoing task and triggers recalculations for all source categories and pollutants frequently.

Further information regarding recalculations (especially due to changes in methods or activity data) can be found in the corresponding chapter of the **National Inventory Report**.

Possible reasons for Recalculations

Due to the ever ongoing efforts to improve the inventory, more or less broad recalculations become necessary with each new submission.

Possible reasons for recalculations are

- **new** (sub-)**categories** to be included in the inventory or re-allocation of existing sub-categories within the inventory
- **data** (activity data & emission factors) for certain (sub-)categories **available for the first time**
- **change of data sources** (for activity data)
- use of **new emission factors** (due to: inquest, research projects, expert judgement etc.)
- **improvement of methods** used for calculating emissions
- **outcome of** ongoing **review** activities under both UN FCCC and UN ECE
- etc.

All these changes can effect *specific years* of the inventory as well as the *entire time series*, leading to more or less significant changes within the emission trends.

Declaration of Recalculations

Under UN FCCC reporting, parties have to comment any recalculations in any year leading to differences between latest and current submission for a given year or the time period or series. Thereby, highest attention is given to recalculations within base year and the most current year of the latest submission:

Recalculations in Base Year data

- mostly rather small but of highest importance
- mostly due to changed methods or emission factors used for entire time series
- impact on basis of any evaluation

Recalculations in data of current year of the latest submission

- mostly because of **corrected activity data** (especially in Energy Production) from actualized Energy Balances
- also due to changed methods, emission factors, or data sources used
- impact on the amount of emission reduction reported in latest submission

Under UN ECE, within the IIR, Germany focusses on recalculations in values reported for **1990** for all MAIN POLLUTANTS, HEAVY METALS and POPS, **1995** for $PM_{2.5}$ and PM_{10} and **2000** for BLACK CARBON (BC), and the **last year of the previous submission**, providing the **quantity** (in absolute numbers and in %) of change for any recalculated emission **and the reasons** for the recalculations carried out

Recalculations in current submission

Table 1: Overview of impact of recalculations on the level of National Totals (For more detailed information please mouseclick the pollutant.)

for reporting year:		BASE YEAR[1]				2021			
in NFR submission:		2023	2024	±	± %	2023	2024	±	± %
Main pollutants									
NEC									
Nitrogen Oxides - NO_x (as NO_2)	[kt]	2,843.28	2,842.27	-1.01	-0.04%	968.78	965.11	-3.67	-0.38%
Non-Methane VOC - NMVOC	[kt]	3,948.88	3,929.35	-19.53	-0.49%	1,044.19	1,042.87	-1.32	-0.13%
Sulphur Oxides - SO_x (as SO_2)	[kt]	5,464.11	5,459.96	-4.15	-0.08%	254.47	250.36	-4.11	-1.62%
Ammonia - NH_3	[kt]	725.52	734.36	8.84	1.22%	515.77	525.48	9.71	1.88%
Particulate Matter									
Particles <2.5µm - $PM_{2.5}$	[kt]	201.56	199.77	-1.79	-0.89%	83.39	82.98	-0.41	-0.49%
Particles <10µm - PM_{10}	[kt]	346.96	337.92	-9.04	-2.60%	183.99	182.51	-1.48	-0.81%
Total Suspended Particles - TSP	[kt]	2,047.88	2,019.60	-28.28	-1.38%	336.87	327.44	-9.42	-2.80%
Black Carbon - BC	[kt]	38.13	39.20	1.07	2.81%	9.90	10.22	0.32	3.25%
Other									
Carbon Monoxide - CO	[kt]	13,319.09	13,320.20	1.11	0.01%	2.585.58	2.595.51	9.94	0.38%
Heavy Metals									
Priority HM									
Lead - Pb	[t]	1,899.19	1,899.27	0.08	0.004%	154.45	155.27	0.82	0.53%
Cadmium - Cd	[t]	29.101	29.100	-0.001	-0.004%	10.87	11.01	0.14	1.28%
Mercury - Hg	[t]	35.531	35.529	-0.001	-0.003%	6.662	6.666	0.003	0.05%
Other HM									
Arsenic - As	[t]	85.919	85.917	-0.002	-0.002%	5.34	5.42	0.08	1.53%
Chrome - Cr	[t]	165.692	165.690	-0.002	-0.001%	68.17	69.98	1.82	2.66%
Copper - Cu	[t]	619.879	619.883	0.005	0.0007%	526.60	533.81	7.21	1.37%
Nickel - Ni	[t]	332.7447	332.7450	0.0004	0.0001%	130.89	136.69	5.80	4.43%
Selenium - Se	[t]	5.7271	5.7272	0.0001	0.001%	2.767	2.764	-0.003	-0.10%
Zinc - Zn	[t]	474.148	474.153	0.005	0.001%	281.42	283.14	1.71	0.61%
Persistent Organic Pollutants - POPs									
Dioxines & Furanes - PCDD/F	[g]	814.14	805.10	-9.04	-1.11%	116.03	107.56	-8.47	-7.30%
Polycyclic Organic Hydrocarbons - PAHs									
Benzo(a)pyrene - B[a]P	[t]	26.9894	26.9895	0.0001	0.0004%	17.45	17.53	0.09	0.49%
Benzo(b)fluoranthene - B[b]F	[t]	35.8305	35.8307	0.0002	0.0005%	25.24	25.54	0.31	1.21%
Benzo(k)fluoranthene - B[k]F	[t]	16.2592	16.2593	0.0001	0.0007%	11.36	11.66	0.30	2.68%
Indeno(1,2,3-c,d)pyrene - I[1,2,3-c,d]P	[t]	23.03145	23.03148	0.00003	0.0001%	17.00	17.12	0.11	0.67%
Polycyclic Aromatic Hydrocarbons - PAH 1-4	[t]	115.75	115.67	-0.08	-0.0683%	75.08	75.67	0.58	0.78%
Other POPs									
Hexachlorobenzene - HCB	[kg]	2,900.52	2,900.52	0.00	0.00%	4.58	4.56	-0.01	-0.30%
Polychlorinated Biphenyls - PCBs	[kg]	1,735.78	1,735.78	0.00	0.00%	220.73	218.88	-1.85	-0.84%

[1]: Base Year of reporting: 1990; excumptions: $PM_{2.5}$ and PM_{10}: 1995 and BC: 2000

Reasons overview

1. revision of (primary) activity data

- 1.A together with 2.C.1: finalisation of National Energy Balance 2021
- 1.A together with 2.C.1: revision of National Energy Balances 2003-2020

2. update or revision of entire model

- 1.A.3.a: routine revision of TREMOD AV
- 1.A.3.b: routine revision of TREMOD
- 1.A.2.g vii, 1.A.4.a ii, 1.A.4.b ii and 1.A.4.c ii: routine revision of TREMOD MM

3. newly implemented acitivity data and/or emission factors

- 1.A.3.d ii: introduction of gasoline and LPG as fuels in domestic inland navigation (as outcome of NEB revision)

4. revision of emission factors

5. re-allocation of activity data and/or emissions

- NRMM in 1.A.2.g vii, 1.A.4.a ii and c ii: revision of methodology to distribute over-all fuel deliveries from NEN line 67 onto NRMM-subcategories

6. as an outcome of the ongoing review activities under both UNFCCC and UNECE