

Overview on GHG inventory reporting under the Paris Agreement

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GHG inventory requirements under the
Enhanced Transparency Framework (ETF)

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Transparency and the MPGs

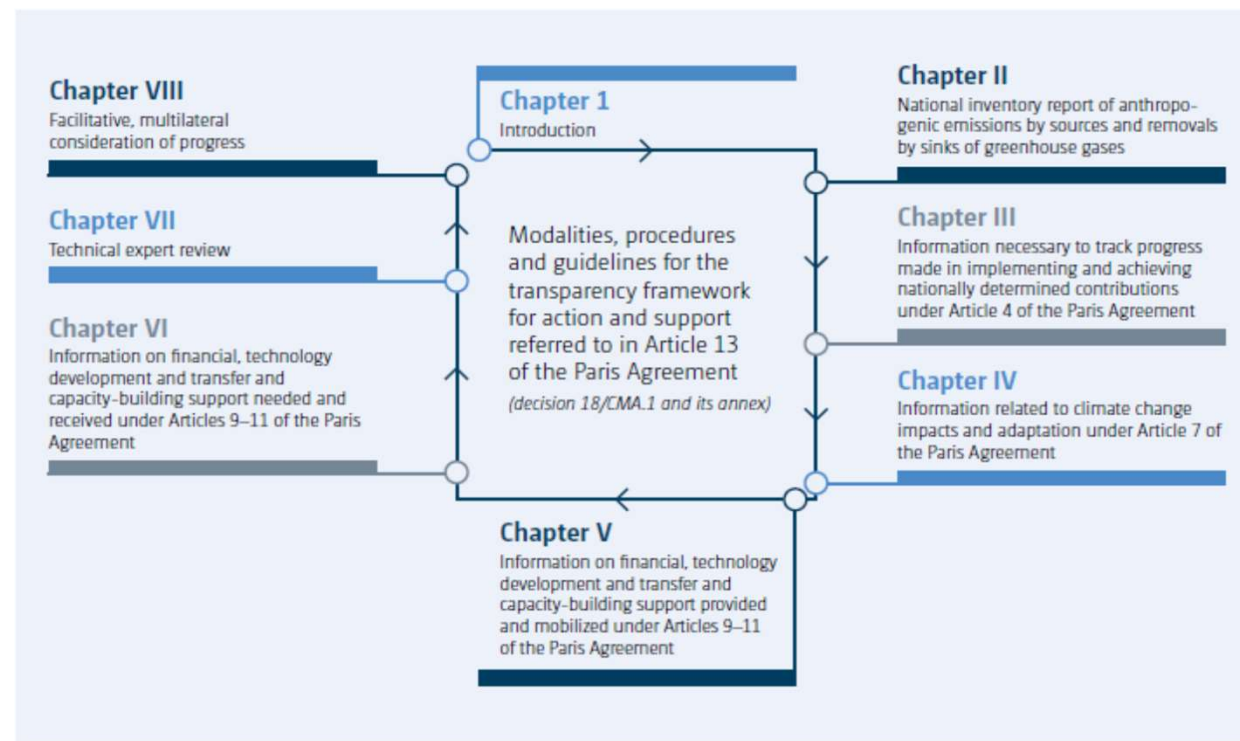


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The Paris Agreement established an Enhanced Transparency Framework (ETF) designed to build trust and confidence that all countries are contributing their share to the global effort

Decision 18/CMA.1 (Katowice) adopted the **Modalities, Procedures and Guidelines (MPGs)** pursuant to Art. 13 of the Paris Agreement

The ETF builds on the current measurement, reporting and verification (MRV) system under the Convention: GHG inventories and the International Assessment and Review (IAR) for developed countries, and International Consultation and Analysis (ICA) for developing countries



Reporting overview



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GHG		NCs		BRs	BTRs	BURs	NCs	
Developed				Developing				
	National circumstances				National circumstances			
National GHG inventory								
		Targets and progress made						
Policies and measures/mitigation actions/programmes containing mitigation measures								
	Projections							
	FTC support provided/mobilized				FTC support needed and received/ constraints and gaps			
	Vulnerability, climate change impacts and adaptation measures				Climate change impacts and adaptation			Programmes containing measures to facilitate adaptation to climate change
	RSO, Education, training and public awareness			Self assessment of compliance	REDD+ technical annex			RSO, Education, training and public awareness, Information and networking

Building on existing arrangements



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While many requirements under the Convention are superseded, those for NCs for all Parties, annual GHG inventory for developed Parties continues.

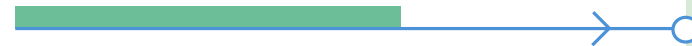
REDD+ results will be reported with BTRs.

FREL/FRL will continue to be reported separately; the technical assessment of reference levels will remain separate.

National Communications (NC) /Biennial Update Reports (BUR) and REDD+ results



NC/GHG Inventories/Biennial Reports (BR)



**Biennial
Transparency Report
(BTR)**

Technical Analysis of BURs and REDD+ results



Reviews NC/GHG/BRs



**Technical
Expert Review (TER)**

Facilitative Sharing of Views



Multilateral Assessment



**Facilitative Multilateral
Consideration
of Progress (FMCP)**

Changes in national GHG inventory reporting for developing countries



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BUR

- Use of 1996 IPCC Guidelines
- Cover inventory year T-4
- Activity data should be updated
- Reporting at a summary level
- Key category analysis should be done
- Limited reporting on institutional arrangements (e.g. archiving, inventory as a continuous process). No specific requirements on QA/QC
- Shall report CO₂, CH₄ and N₂O (using SAR values); encouraged to report other gases
- Should quantitatively estimate uncertainty



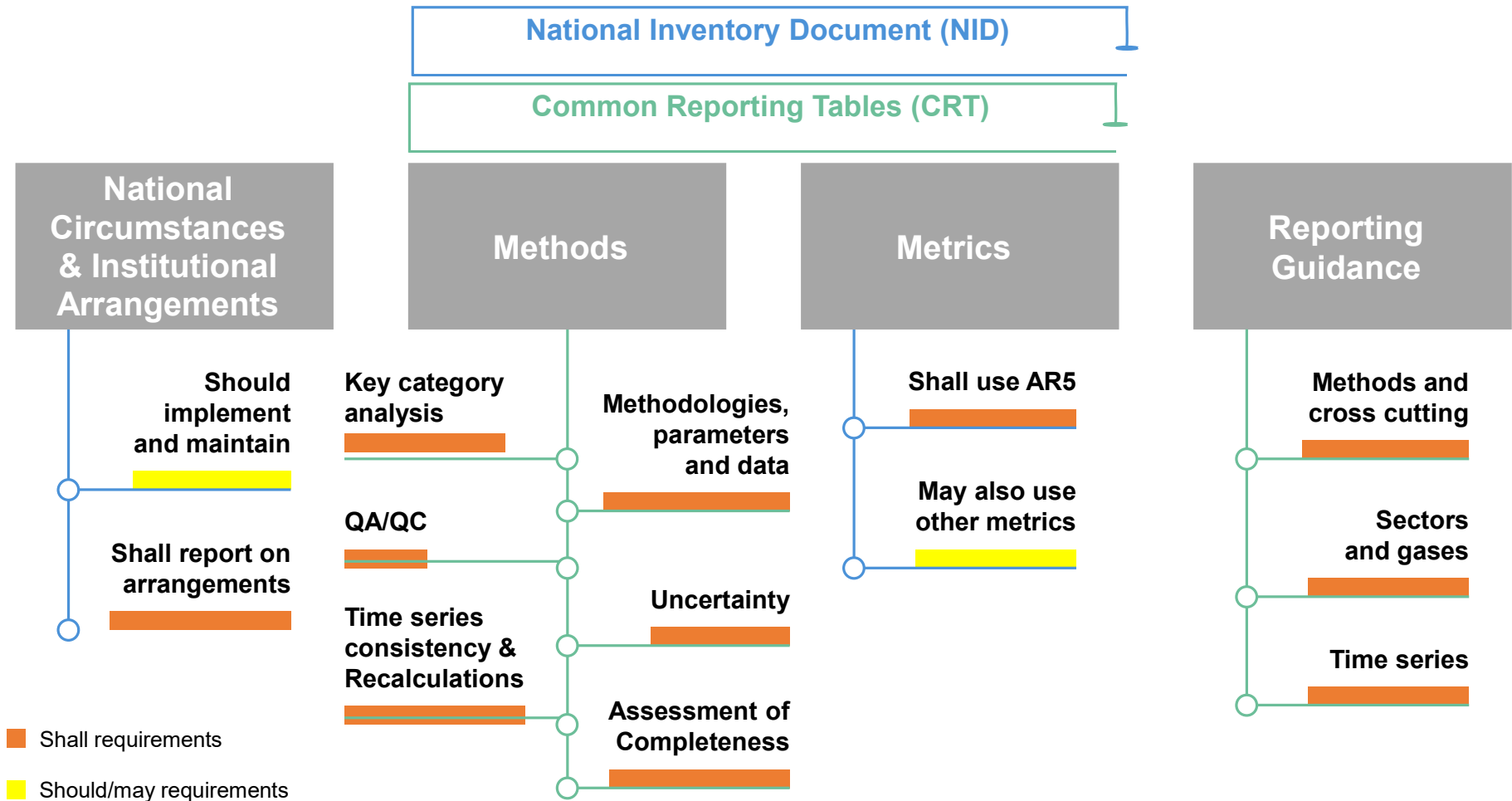
BTR

- Use of the 2006 IPCC Guidelines
- Cover year T-2 (T-3 with flexibility*)
- Recalculations of previous data required
- Reporting tables and Outline of National Inventory Document finalized at CMA 3
- Key category analysis required (with flexibility*)
- Reporting on institutional arrangements required (e.g. planning, preparation and management). Shall develop a QA/QC plan (with flexibility*)
- Shall report basket of 7 gases (with flexibility*), using AR5 GWP values
- Shall quantitatively estimate uncertainty (with flexibility*)

National Inventory Report - overview



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The 2006 Guidelines encourage continuous improvement and rigor through QA/QC and verification activities.

For a full definition of the IPCC principles, see 2006 IPCC Guidelines, vol. 1, chpt. 1, sec. 1.4.

Transparency

Documentation is sufficiently clear such that individuals or groups other than the inventory compilers can understand how the inventory was compiled be certain it meets IPCC good practice requirements.

Accuracy

The GHG inventory contains neither over- nor under-estimates so far as can be Judged; all endeavors made to remove bias from the inventory estimates.

Consistency

Estimates for different inventory years, gases and categories are made in such a way that differences in the results between years and categories reflect real differences in emissions.

Completeness

Estimates are reported for all relevant categories and gases in the relevant geographic area.

Missing categories are clearly documented together with a justification for exclusion.

Comparability

The GHG inventory is reported in a way that allows it to be compared with inventories for other countries.



Methods/Guidelines

- 2006 IPCC Guidelines are required, along with any subsequent version/refinement agreed upon by the CMA Parties encouraged to apply the 2013 Wetlands Supplement
- Countries always encouraged to apply higher-tier methods and factors
- Energy, Industrial Processes and Product Use, Agriculture, Waste, Land use, Land Use Change and Forestry
- Use global warming potential values from AR5

Gases

- **Shall**: CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃ (with flexibility)
- **Should**: pre-cursor gases (CO, NO_x, NMVOCs and SO₂)
- **May** report indirect CO₂ from atmospheric oxidation of CH₄, CO and NMVOCs; if choose to, report total GHG emissions with and without indirect CO₂
- **Should** report indirect N₂O other than ag/LULUCF as a memo item (not included in national totals)
- **May** report other substances that have an impact on climate

Time series

- **Shall**: report consistent time series from 1990 (with flexibility)
- **Shall**: Latest reporting year no more than 2 years prior to the submission year (with flexibility)



Key category analysis

- **Shall** identify those categories that contribute most to the level or trend of emissions; generally use higher tier methods for key categories (with flexibility)

Time series consistency & recalculations

- **Should** use the same methods over time, as well as approach to AD and EFs
- **Should** use IPCC splicing techniques to fill in gaps in time series
- **Shall** perform recalculations in accordance with IPCC Guidelines

Uncertainty Assessment

- **Shall** quantitatively assess uncertainty and qualitatively discuss uncertainty for all source and sink categories, for at least the starting year and latest year (with flexibility)



Completeness Assessment

- **Should** indicate sources/sinks included in IPCC Guidelines, but not reported.
- **Shall** use notation keys where numerical data not reported, describing why the emissions for specific categories are not reported.
- **May** exclude “insignificant” categories from reporting, where insignificant defined as categories being 500 kt CO₂ eq or 0.05% of national emissions, whichever is lower. Total sum of categories considered insignificant must remain below 0.1% of total national emissions **(with flexibility)**
- Once categories are reported, Parties **shall** continue reporting the category

QA/QC

- **Shall** elaborate an inventory QA/QC plan **(with flexibility)**
- **Shall** implement general QA/QC procedures **(with flexibility)**
- **Should** apply category-specific QC procedures for key categories and for categories in which significant methodological changes and/or data revisions have occurred.
- **Should** conduct a basic peer review of inventory
- **Should** compare sectoral estimates with the reference approach, and report results



Flexibility Provisions

- The ETF provides built-in flexibility to those developing countries that need it owing to their national capacities
- Capacity-building and support from developed country Parties will be crucial to facilitating improvement in reporting over time
- MPGs specify the flexibility that is available in the scope, frequency and level of detail of reporting, and in the scope of the review
- The application of a flexibility provided for in the provisions of these MPGs is self-determined

Least Developed Countries (LDCs) and Small Island Developing States (SIDS)

- Special circumstances of the least developed countries and small island developing states were recognized
- LDCs/SIDS may submit the information referred to in Article 13 (paras. 7, 8, 9 and 10) at their discretion

Support and capacity building

- Support shall be provided to developing countries for the implementation of Article 13
- Support shall also be provided continuously for building transparency-related capacity of developing countries

Flexibility provisions for national GHG inventory



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Flexibility (annex to Dec. 18/CMA.1)	Flexibility provisions for those developing country Parties that need it in the light of their capacities
Key categories (para. 25)	Identify key categories using a threshold no lower than 85 per cent (instead of 95 per cent)
Uncertainty assessment (para. 29)	Provide qualitative discussion of uncertainty for key categories both latest inventory year/ trend, instead of quantitatively estimating and qualitatively discussing uncertainty for all categories for at least the starting year and the latest reporting year and the trend.
Completeness (para. 32)	Consider emissions insignificant if the likely level of emissions is below 0.1 per cent of total GHG emissions, excluding LULUCF, or 1,000 kt CO ₂ eq, whichever lower (as opposed to 0.05 per cent or 500 kt CO ₂ eq). Total emissions for all gases from categories considered insignificant shall remain below 0.2 % total GHG emissions, excluding LULUCF, as opposed to 0.1 per cent.
QA/QC (paras. 34 and 35)	<p>Encouraged to elaborate an inventory QA/QC plan including information on the inventory agency responsible for implementing QA/QC (as opposed to a requirement to develop a QA/QC plan).</p> <p>Encouraged to implement and provide information on general inventory QC procedures in accordance with their QA/QC plan (as opposed to required to implement and provide information).</p>
Gases (para. 48)	Report at least 3 gases (CO ₂ , CH ₄ and N ₂ O). Also any of the 4 gases (HFCs, PFCs, SF ₆ and NF ₃) included in NDC under Art. 4 or that are covered by an activity under Art. 6, or have been previously reported (as opposed to reporting all 7 gases)
Time series (paras. 57 and 58)	<p>Report data covering the reference year/period for the NDC and, in addition, a consistent annual time series from at least 2020 onward (as opposed to reporting a continuous time series from 1990 onwards).</p> <p>The latest reporting year shall be no more than 3 years prior to submission of the inventory (as opposed to no more than 2 years for all other Parties)</p>

- Method, Section II, D. Metrix, §37
Appendix 8.A: Lifetimes, Radiative Efficiencies and Metric Values
- 5/CMA.3, §25 Clarifies that the 100-year time-horizon global warming potential values referred to in decision 18/CMA.1, annex, paragraph 37, shall be those listed in table 8.A.1 of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, excluding the value for fossil methane;
- https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf#page=73

Appendix 8.A: Lifetimes, Radiative Efficiencies and Metric Values

Table 8.A.1 | Radiative efficiencies (REs), lifetimes/adjustment times, AGWP and GWP values for 20 and 100 years, and AGTP and GTP values for 20, 50 and 100 years. Climate-carbon feedbacks are included for CO₂ while no climate feedbacks are included for the other components (see discussion in Sections 8.7.1.4 and 8.7.2.1, Supplementary Material and notes below the table; Supplementary Material Table 8.SM.16 gives analogous values including climate-carbon feedbacks for non-CO₂ emissions). For a complete list of chemical names and CAS numbers, and for accurate replications of metric values, see Supplementary Material Section 8.SM.13 and references therein.

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	AGTP 20-year (K kg ⁻¹)	GTP 20-year	AGTP 50-year (K kg ⁻¹)	GTP 50-year	AGTP 100-year (K kg ⁻¹)	GTP 100-year
Carbon dioxide	CO ₂	see*	1.37e-5	2.49e-14	1	9.17e-14	1	6.84e-16	1	6.17e-16	1	5.47e-16	1
Methane	CH ₄	12.4†	3.63e-4	2.09e-12	84	2.61e-12	28	4.62e-14	67	8.69e-15	14	2.34e-15	4
Fossil methane‡													
Nitrous Oxide	N ₂ O	121†	3.00e-3	6.58e-12	264	2.43e-11	265	1.89e-13	277	1.74e-13	282	1.28e-13	234

Metrics (F-gases)



- https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf#page=74
- https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf#page=75
- https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf#page=76

Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	#
Hydrofluorocarbons								
HFC-23	CHF ₃	222.0	0.18	2.70e-10	10,800	1.14e-09	12,400	7.1
HFC-32	CH ₂ F ₂	5.2	0.11	6.07e-11	2430	6.21e-11	677	9.1
HFC-41	CHF	2.8	0.02	1.07e-11	427	1.07e-11	116	1.1
HFC-125	CHF ₂ CF ₃	28.2	0.23	1.52e-10	6090	2.91e-10	3170	3.1
HFC-134	CHF ₂ CHF ₂	9.7	0.19	8.93e-11	3580	1.02e-10	1120	1.1
HFC-134a	CH ₂ FCF ₃	13.4	0.16	9.26e-11	3710	1.19e-10	1300	2.1
HFC-143	CH ₂ FCHF ₂	3.5	0.13	3.00e-11	1200	3.01e-11	328	3.1
HFC-143a	CH ₂ CF ₃	47.1	0.16	1.73e-10	6940	4.41e-10	4800	4.1
HFC-152	CH ₂ FCHF ₂	0.4	0.04	1.51e-12	60	1.51e-12	16	1.1
HFC-152a	CH ₂ CHF ₂	1.5	0.10	1.26e-11	506	1.26e-11	138	1.1
HFC-161	CH ₂ CHF ₂	66.0 days	0.02	3.33e-13	13	3.33e-13	4	2.1
HFC-227ca	CF ₃ CF ₂ CHF ₂	28.2	0.27	1.27e-10	5080	2.42e-10	2640	3.1
HFC-227ea	CF ₃ CHF ₂ CF ₂	38.9	0.26	1.34e-10	5360	3.07e-10	3350	3.1
HFC-236cb	CHF ₂ CF ₂ CF ₃	13.1	0.23	8.67e-11	3480	1.11e-10	1210	1.1
HFC-236fa	CHF ₂ CHF ₂ CF ₃	11.0	0.30 ^a	1.03e-10	4110	1.22e-10	1330	2.1
HFC-236fa	CF ₃ CH ₂ CF ₃	242.0	0.24	1.73e-10	6940	7.39e-10	8060	5.1
HFC-245ca	CH ₂ FCHF ₂ CF ₃	6.5	0.24 ^a	6.26e-11	2510	6.56e-11	716	1.1
HFC-245cb	CF ₃ CF ₂ CH ₂	47.1	0.24	1.67e-10	6680	4.24e-10	4620	4.1
HFC-245ea	CHF ₂ CHF ₂ CF ₃	3.2	0.16 ^a	2.15e-11	863	2.16e-11	235	2.1
HFC-245eb	CH ₂ FCHF ₂ CF ₃	3.1	0.20 ^a	2.66e-11	1070	2.66e-11	290	3.1
HFC-245fa	CHF ₂ CH ₂ CF ₃	7.7	0.24	7.29e-11	2920	7.87e-11	858	1.1
HFC-263bf	CH ₂ CF ₂ CF ₃	1.2	0.10 ^a	6.93e-12	278	6.93e-12	76	6.1
HFC-272ca	CH ₂ CF ₂ CH ₂	2.6	0.07	1.32e-11	530	1.32e-11	144	1.1
HFC-329p	CHF ₂ CF ₂ CF ₂ CF ₃	28.4	0.31	1.13e-10	4510	2.16e-10	2360	2.1
HFC-365mfc	CH ₂ CF ₂ CF ₂ CF ₃	8.7	0.22	6.64e-11	2660	7.38e-11	804	1.1
HFC-43-10mee	CF ₃ CHFCH ₂ CF ₂ CF ₃	16.1	0.42 ^a	1.08e-10	4310	1.51e-10	1650	2.1
HFC-1132a	CH ₂ CF ₂	4.0 days	0.004 ^a	3.87e-15	<1	3.87e-15	<1	3.1
HFC-114f	CH ₂ =CHF	2.1 days	0.002 ^a	1.54e-15	<1	1.54e-15	<1	1.1
(Z)-HFC-1225ye	CF ₂ =CHF(Z)	8.5 days	0.02	2.14e-14	<1	2.14e-14	<1	1.1
(E)-HFC-1225ye	CF ₂ =CHF(E)	4.9 days	0.01	7.25e-15	<1	7.25e-15	<1	5.1
(Z)-HFC-1234ze	CF ₃ CH=CHF(Z)	10.0 days	0.02	2.61e-14	1	2.61e-14	<1	2.1
HFC-1234yf	CF ₃ CF=CH ₂	10.5 days	0.02	3.22e-14	1	3.22e-14	<1	2.1
(E)-HFC-1234ze	trans-CF ₃ CH=CHF	16.4 days	0.04	8.74e-14	4	8.74e-14	<1	6.1
(Z)-HFC-1336	CF ₃ CH=CHF(Z)	22.0 days	0.07 ^a	1.54e-13	6	1.54e-13	2	1.1

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	#
Chlorocarbons and Hydrochlorocarbons								
HFC-1243zf	CF ₃ CH=CH ₂	7.0 days	0.01	1.37e-14	1	1.37e-14	<1	
HFC-1345zfc	C ₃ F ₇ CH=CH ₂	7.6 days	0.01	1.15e-14	<1	1.15e-14	<1	
3,3,4,4,5,5,6,6,6-Nonafluorocyclohex-1-ene	C ₆ F ₉ CH=CH ₂	7.6 days	0.03	1.25e-14	<1	1.25e-14	<1	
3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooct-1-ene	C ₈ F ₁₃ CH=CH ₂	7.6 days	0.03	9.89e-15	<1	9.89e-15	<1	
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Hep-tadecafluorodec-1-ene	C ₁₀ F ₁₉ CH=CH ₂	7.6 days	0.03	8.52e-15	<1	8.52e-15	<1	
Chlorocarbons and Hydrochlorocarbons								
Methyl chloroform	CH ₂ CCl ₃	5.0	0.07	1.44e-11	578	1.47e-11	160	
Carbon tetrachloride	CCl ₄	26.0	0.17	8.69e-11	3480	1.59e-10	1730	
Methyl chloride	CH ₃ Cl	1.0	0.01 ^a	1.12e-12	45	1.12e-12	12	
Methylene chloride	CH ₂ Cl ₂	0.4	0.03 ^a	8.18e-13	33	8.18e-13	9	
Chloroform	CHCl ₃	0.4	0.08	1.50e-12	60	1.50e-12	16	
1,2-Dichloroethane	CH ₂ ClCH ₂ Cl	65.0 days	0.01	8.24e-14	3	8.24e-14	<1	
Bromocarbons, Hydrobromocarbons and Halons								
Methyl bromide	CH ₃ Br	0.8	0.004	2.16e-13	9	2.16e-13	2	
Methylene bromide	CH ₂ Br ₂	0.3	0.01	9.31e-14	4	9.31e-14	1	
Halon-1201	CHBrF ₂	5.2	0.15	3.37e-11	1350	3.45e-11	376	
Halon-1202	CBrF ₃	2.9	0.27	2.12e-11	848	2.12e-11	231	
Halon-1211	CBrClF ₂	16.0	0.29	1.15e-10	4590	1.60e-10	1750	
Halon-1301	CBrF ₃	65.0	0.30	1.95e-10	7800	5.77e-10	6290	
Halon-2301	CH ₂ BrCF ₃	3.4	0.14	1.59e-11	635	1.59e-11	173	
Halon-2311 / Halothane	CHBrClCF ₃	1.0	0.13	3.77e-12	151	3.77e-12	41	
Halon-2401	CHBrCF ₃	2.9	0.19	1.68e-11	674	1.68e-11	184	
Halon-2402	CBrF ₂ CF ₃	20.0	0.31	8.59e-11	3440	1.35e-10	1470	
Fully Fluorinated Species								
Nitrogen trifluoride	NF ₃	590.0	0.20	3.19e-10	12,800	1.47e-09	16,100	
Sulphur hexafluoride	SF ₆	3,200.0	0.57	4.37e-10	17,500	2.16e-09	23,500	
(Trifluoromethyl) sulphur pentafluoride	SF ₅ CF ₃	800.0	0.59	3.36e-10	13,500	1.60e-09	17,400	
Sulphury fluoride	SO ₂ F ₂	36.0	0.20	1.71e-10	6840	3.76e-10	4090	
PFC-14	CF ₄	50,000.0	0.09	1.22e-10	4880	6.08e-10	6630	
PFC-116	C ₂ F ₆	10,000.0	0.25	2.05e-10	8210	1.02e-09	11,100	
PFC-216	C ₃ F ₈	3,000.0	0.23 ^a	1.71e-10	6850	8.44e-10	9200	
PFC-218	C ₃ F ₈	2,600.0	0.28	1.66e-10	6640	8.16e-10	8900	
PFC-318	C ₄ F ₁₀	3,200.0	0.32	1.77e-10	7110	8.75e-10	9540	

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	#
Perfluorocarbons								
PFC-31-10	C ₁₀ F ₁₈	2,600.0	0.36	1.71e-10	6870	8.44e-10	9200	
Perfluorocyclopentene	c-C ₅ F ₈	31.0 days	0.08 ^a	1.71e-13	7	1.71e-13	2	
PFC-41-12	n-C ₄ F ₁₀	4,100.0	0.41	1.58e-10	6350	7.84e-10	8550	
PFC-51-14	n-C ₅ F ₁₂	3,100.0	0.44	1.47e-10	5890	7.26e-10	7910	
PFC-61-16	n-C ₆ F ₁₄	3,000.0	0.50	1.45e-10	5830	7.17e-10	7820	
PFC-71-18	C ₇ F ₁₆	3,000.0	0.55	1.42e-10	5680	6.99e-10	7620	
PFC-91-18	C ₉ F ₁₈	2,000.0	0.55	1.34e-10	5390	6.59e-10	7190	
Perfluorodecalin (cis)	Z-C ₁₀ F ₁₈	2,000.0	0.56	1.35e-10	5430	6.64e-10	7240	
Perfluorodecalin (trans)	E-C ₁₀ F ₁₈	2,000.0	0.48	1.18e-10	4720	5.77e-10	6290	
PFC-1114	CF ₃ =CF ₂	1.1 days	0.002	2.68e-16	<1	2.68e-16	<1	
PFC-1216	CF ₃ CF=CF ₂	4.9 days	0.01	6.42e-15	<1	6.42e-15	<1	
Perfluorobuta-1,3-diene	CF ₂ =CFCF=CF ₂	1.1 days	0.003	3.29e-16	<1	3.29e-16	<1	
Perfluorobut-1-ene	CF ₃ CF ₂ CF=CF ₂	6.0 days	0.02	8.38e-15	<1	8.38e-15	<1	
Perfluorobut-2-ene	CF ₃ CF=CFCF ₂	31.0 days	0.07	1.62e-13	6	1.62e-13	2	

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Structure of the Common Reporting Tables (CRT)



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Structure of the Common Reporting Tables (CRT)



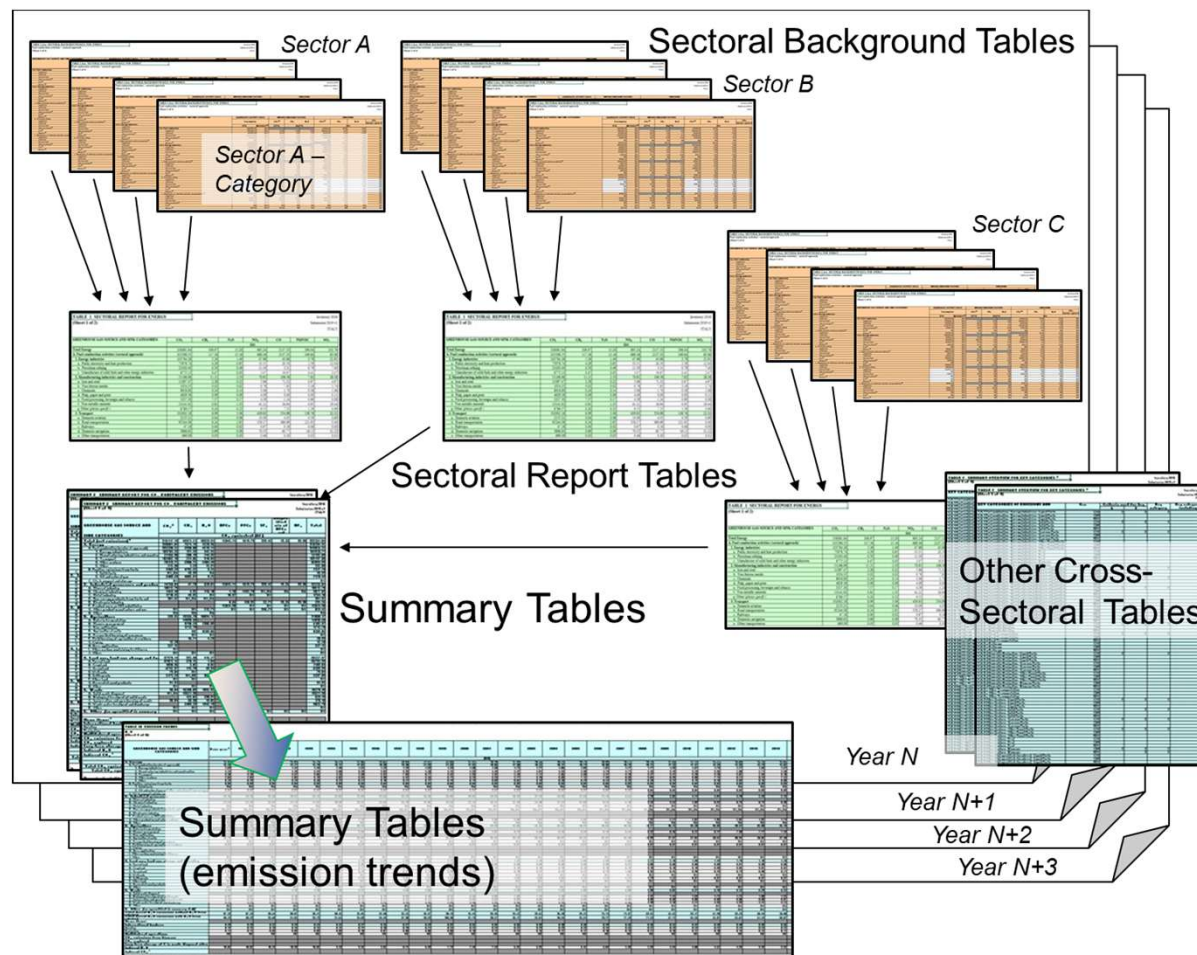
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Summary tables

Other cross-sectoral tables

Sectoral tables

- Sectoral Background Data Tables
- Sectoral Report Tables
- Other (e.g. reference approach for energy)



CRT – Sectoral Background Data tables



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Automatic aggregation for subtotals of categories

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA	
	Consumption	
	(TJ)	NCV/GCV ⁽³⁾
b. Road transportation ⁽¹¹⁾	P+Q+R+S+T+U	NCV
Gasoline	P+S	NCV
Diesel oil	Q+T	NCV
Liquefied petroleum gases (LPG)	R+U	NCV
i. Cars	P+Q+R	NCV
Gasoline	P	NCV
Diesel oil	Q	NCV
Liquefied petroleum gases (LPG)	R	NCV
ii. Light duty trucks	S+T+U	NCV
Gasoline	S	NCV
Diesel oil	T	NCV
Liquefied petroleum gases (LPG)	U	NCV

CRT – Sectoral Report tables



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- Emissions for GHGs and other gases, in kt of each gas (for HFCs and PFCs in kt CO₂ eq.)
- No need to fill data in reporter in this level.

TABLE 5 SECTORAL REPORT FOR WASTE
(Sheet 1 of 1)

Year
Submission
Country

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	NO _x	CO	NMVOC	SO ₂
	(kt)						
Total waste							
A. Solid waste disposal							
1. Managed waste disposal sites							
2. Unmanaged waste disposal sites							
3. Uncategorized waste disposal sites							
B. Biological treatment of solid waste							
1. Composting							
2. Anaerobic digestion at biogas facilities							
C. Incineration and open burning of waste							
1. Waste incineration							
2. Open burning of waste							
D. Wastewater treatment and discharge							
1. Domestic wastewater							
2. Industrial wastewater							
3. Other (as specified in table 5.D)							
E. Other (please specify)							
Memo item:⁽²⁾							
Long-term storage of C in waste disposal sites							
Annual change in total long-term C storage							
Annual change in total long-term C storage in HWP waste ⁽³⁾							

CRT – Summary tables & Other cross sectoral tables



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- **Summary 1** Summary of GHGs emissions/removals and other gases emissions in kt of each gas (for F-gases in kt CO2 eq.)
- **Summary 2** Summary of GHGs emissions/removals in kt CO2 eq.
- **Summary 3** Summary of methods and EFs applied
- **Table 6** Indirect emissions of N2O and CO2
- **Table 7** the result of key category analysis (2006 IPCC GL's approach 1)
- **Table 8** Recalculations (comparing with the previous submission)
- **Table 9** Completeness – information on notation keys (i.e. NE and IE)
- **Table 10** Emissions trends
- **Summary table on the use of flexibility provisions**

Summary Tables

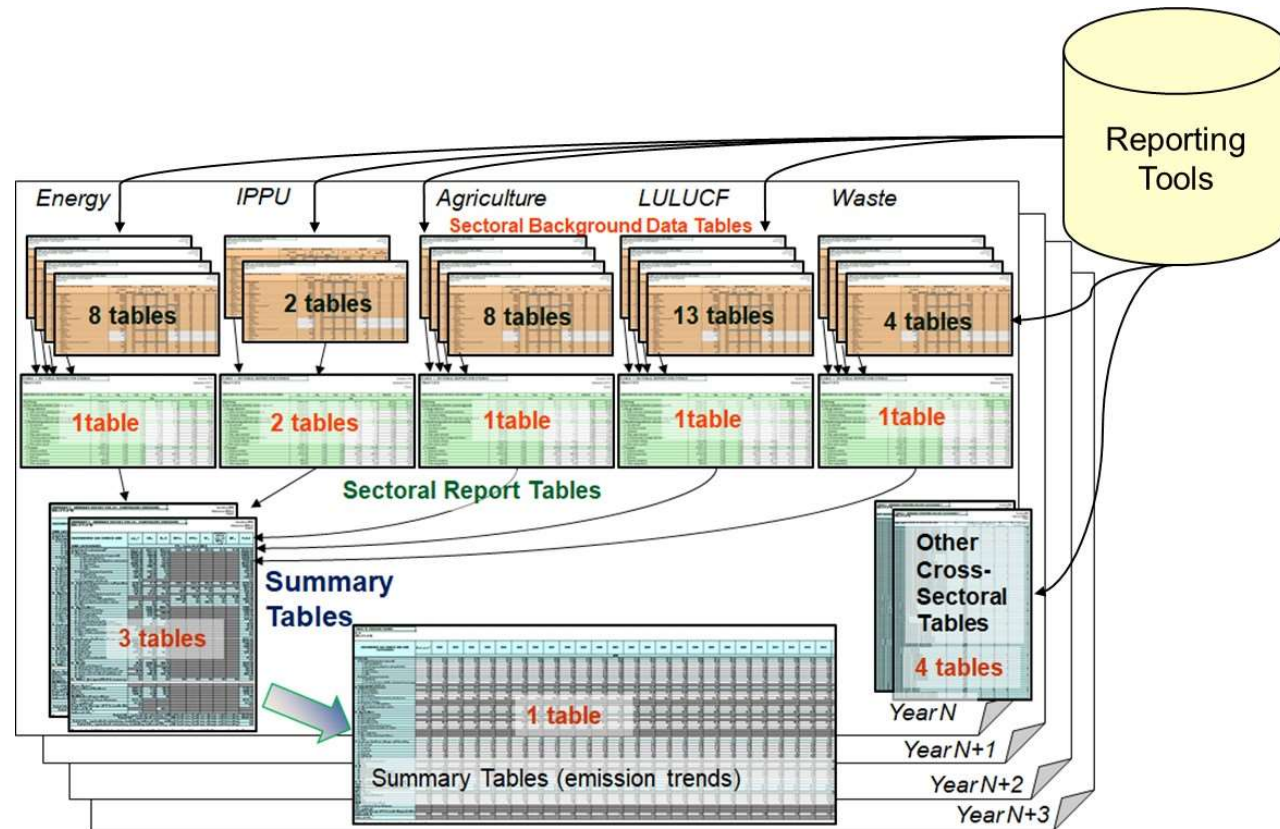
Other Cross-Sectoral Tables

Summary Tables (emission trends)

Structure of the Common Reporting Tables (CRT)



- Reporting Tools generate the CRT agreed by Parties
- Data to be filled are ONLY most disaggregated level of categories
- CRT output consists of 49 tables (for a year)



Outline of the national inventory document (NID)



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Outline of the national inventory document (NID)



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- **EXECUTIVE SUMMARY**
- **Chapter 1: National circumstances, institutional arrangements and cross-cutting information**
- **Chapter 2: Trends in greenhouse gas emissions and removals**
- **Chapter 3: Energy (CRT sector 1)**
- **Chapter 4: Industrial processes and product use (CRT sector 2)**
- **Chapter 5: Agriculture (CRT sector 3)**
- **Chapter 6: Land use, land-use change and forestry (CRT sector 4)**
- **Chapter 7: Waste (CRT sector 5)**
- **Chapter 8: Other (CRT sector 6) (if applicable)**
- **Chapter 9: Indirect carbon dioxide and nitrous oxide emissions (related to non-mandatory provisions as per para. 52 of the MPGs)**
- **Chapter 10: Recalculations and improvements**



■ Chapter 4: Industrial processes and product use (CRT sector 2)

- 4.1. Overview of the sector (e.g. quantitative overview and description, including trends and methodological tiers by category) and background information
- 4.2. Category (CRT category number)
 - 4.2.1. Category description (e.g. characteristics of sources)
 - 4.2.2. Methodological issues (e.g. choice of methods/AD/EFs used, assumptions, parameters and conventions underlying the emission estimates and the rationale for their selection, and so on)
 - 4.2.3. Description of any flexibility applied (i.e. by developing country Parties as per paras. 4–6 of the MPGs)
 - 4.2.4. Uncertainty assessment and time-series consistency (flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 29 of the MPGs)
 - 4.2.5. Category-specific QA/QC and verification, if applicable (related to non-mandatory provisions as per para. 35 of the MPGs, with flexibility provided to those developing country Parties that need it in the light of their capacities as per paras. 34–35 of the MPGs)
 - 4.2.6. Category-specific recalculations, if applicable, including explanatory information and justifications for recalculations, changes made in response to the review process and impacts on emission trends
 - 4.2.7. Category-specific planned improvements, if applicable (e.g. methodologies, AD, EFs), including tracking of those identified in the review process (related to a non-mandatory provision as per para. 7 of the MPGs, with flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 7(c) of the MPGs)

Outline of the national inventory document (NID) (cont.)



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- **Annexes to the national inventory document**
- **Annex I: Key categories (flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 25 of the MPGs)**
- **Annex II: Uncertainty assessment (flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 29 of the MPGs)**
- **Annex III: Detailed description of the reference approach (including inputs to the reference approach such as the national energy balance) and the results of the comparison of national estimates of emissions with those obtained using the reference approach (related to a non-mandatory provision as per para. 36 of the MPGs)**
- **Annex IV: QA/QC plan (related to a non-mandatory provision as per para. 35 of the MPGs, with flexibility provided to those developing country Parties that need it in the light of their capacities as per paras. 34–35 of the MPGs)**
- **Annex V: Any additional information, as applicable, including detailed methodological descriptions of source or sink categories and the national emission balance**
- **Annex VI: Common reporting tables**

Key milestones and deliverables for ETF reporting tools



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Existing reporting tools 1



CRF Reporter
user interface

CRF Tables

Data entry

Id	[5. Waste disposal sites][5.A.1.a Anaerobic]	Unit	1990	1991
L1	Annual waste at the SWDS	kt	46,686.590841	41,300.979704
L2	MCF		1.00	1.00
L3	DOC _f	%	50.00	50.00
L4	Method			
L5	CO ₂		NA	NA
L6	CH ₄		T2	T2
L7	Emission factor information			
L8	CO ₂		NA	NA
L9	CH ₄		CS	CS
L10	Emissions			
L11	CO ₂	kt	NE	NE
L12	CH ₄			
L13	Emissions	kt	1,370.00	1,452.00
L14	Amount of CH ₄ flared	kt	IE	IE
L15	Amount of CH ₄ for energy	kt	92.00	103.00
L16	Implied emission factor			
L17	CO ₂	t/t	NE	NE
L18	CH ₄	t/t	0.0293446142	0.0351565510
L19	Documentation box			

TABLE 5.A SECTORAL BACKGROUND DATA FOR WASTE
Solid waste disposal
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION		
	Annual waste at the SWDS (kt)	MCF	DOC _f %
1. Managed waste disposal sites	46686.59		
a. Anaerobic	46686.59	1.00	50.00
b. Semi-aerobic	NA	NA	NA
2. Unmanaged waste disposal sites	NO	NO	NO
3. Uncategorized waste disposal sites	NO	NO	NO

IMPLIED EMISSION FACTOR		EMISSIONS			
CH ₄ ⁽¹⁾	CO ₂	CH ₄			CO ₂ ⁽⁴⁾
		Emissions ⁽²⁾	Amount of CH ₄ flared	Amount of CH ₄ for energy recovery ⁽³⁾	
		(kt)			
0.03	NE,NA	1370.00	IE,NA	92.00	NE,NA
0.03	NE	1370.00	IE	92.00	NE
NA	NA	NA	NA	NA	NA
NO	NO	NO	NO	NO	NO
NO	NO	NO	NO	NO	NO

automatic calculation

Summary, trend, KCA, recalculation tables are automatically filled in



Key outcomes on ETF

Finalized discussions on the MPGs for ETF (decision 5/CMA.3) and adoption of:

- **Common reporting tables (CRT) for reporting the GHG inventories**
- **Common tabular formats (CTF1) for tracking progress in implementing NDCs**
- **Common tabular formats (CTF2) for FTC support provided and mobilized**
- Outlines of the Biennial Transparency Report (BTR) & national inventory document (NID)
- Training programme for technical experts participating in reviews

Reporting
tools

First BTRs are due by 31 December 2024 (poss. earlier)

Initiation phase – 2022



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2022

Initiation phase for the development of reporting tools

Implementation phase



Started work on
BRD

Finalize work on
BRD and SRS

Start IT development for reporting tools
& DWH, plus the interoperability with
IPCC software

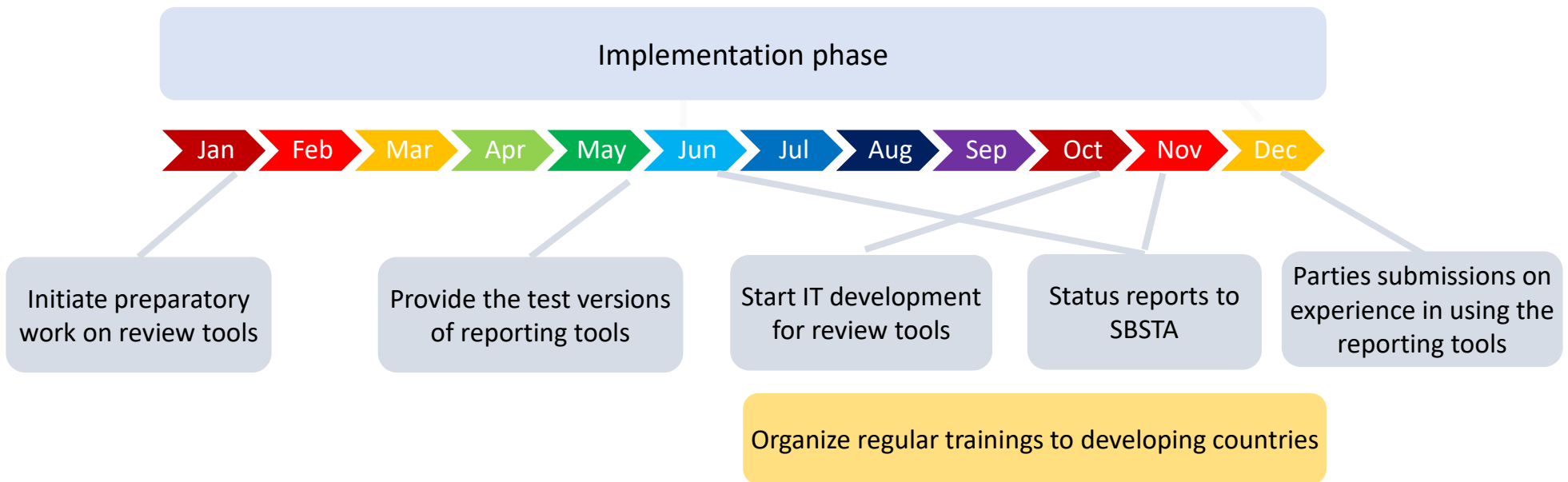
Status report to
SBSTA

Implementation phase – 2023/24



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2023

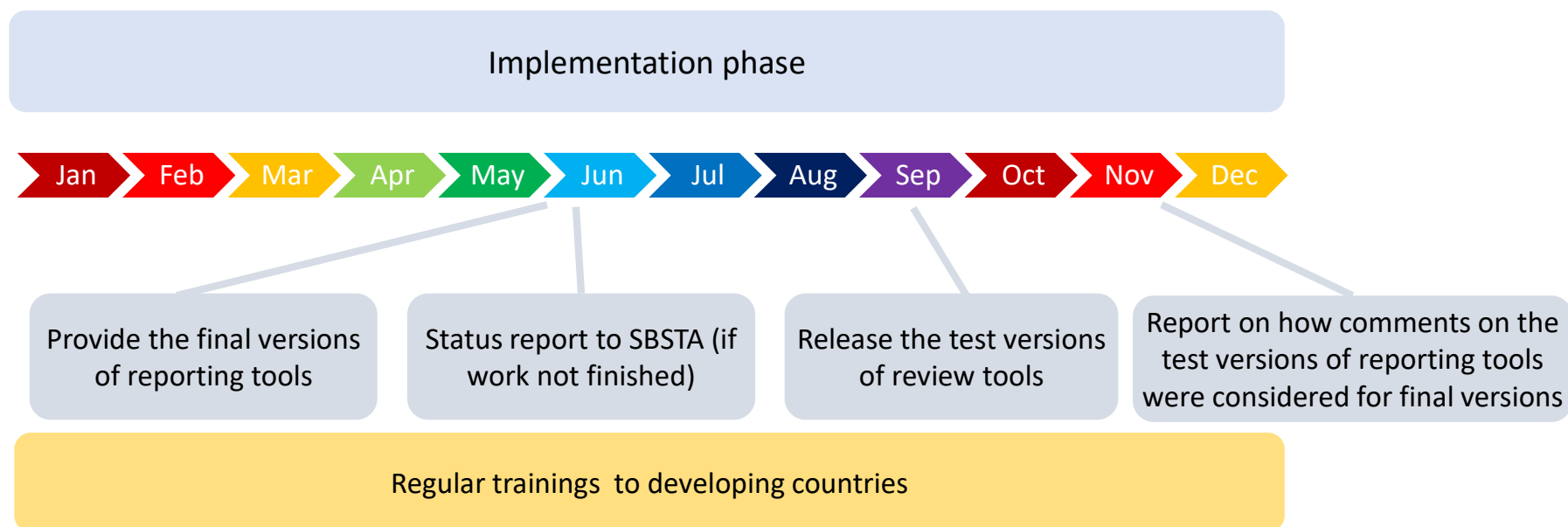


Implementation phase – 2023/24



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2024



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Thank You



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Tomoyuki Aizawa, Transparency Division