



Global BTR Dialogue

April 29th - May 3rd, 2024
Brussels



**Partnership on Transparency
in the Paris Agreement**

Supported by:



Federal Foreign Office



on the basis of a decision
by the German Bundestag



Ministry of Environment
Greenhouse Gas Inventory
and Research Center



forestry, fisheries
& the environment
Department
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Preparing the first GHG inventory under the Paris Agreement

Day 2
30 April 2024



Partnership on Transparency
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Ministry of Environment

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I am Ricardo Fernandez

- EU GHG inventory compiler and inventory focal point to UNFCCC – together with EC DG CLIMA
- Lead reviewer for GHG inventories, BRs, NCs & BTRs, and TTE member in BURs
- Former CGE member for the EU
- Permanent EU transparency coordinator for international climate negotiations
- Climate change mitigation expert at the EEA



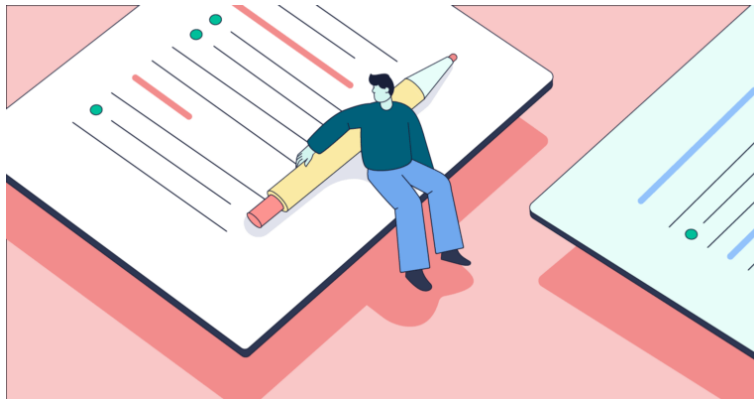
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Outline: what I should cover in 15 minutes

- A. GHG inventory reporting: main documents and tools to be aware of, what to report, how to report it, & suggestions how to approach the NID
- B. Key principles of the MPGs relevant to GHG inventories
- C. GHG inventory review: Main elements regarding scope
- D. Own experience on essential elements of sustainable GHG inventory reporting from the EU inventory perspective





A. GHG inventory reporting: main documents and tools to be aware of and use

1. What to report: Decision 18/CMA.1 (MPGs, Katowize)
2. How to report:
 - a) Common reporting tables (CRTs) + UNFCCC reporting tool - 5/CMA.3
 - b) National inventory document (NID) - 5/CMA.3
3. How to estimate emissions and removals: IPCC 2006 Guidelines and its 2019 refinement





A1. What to report: MPGs – Section II

- A. Definitions
- B. National circumstances and institutional arrangements
(see review)
- C. Methods
 1. Methodologies, parameters and data
 2. Key category analysis (+F)
 3. Time-series consistency and recalculations
 4. Uncertainty assessment (+F)
 5. Assessment of completeness (+F)
 6. Quality assurance/quality control (+F) (+F)
- D. Metrics
- E. Reporting guidance
 1. Information on methods and cross-cutting elements
 2. Sectors and gases (+F)
 3. Time series (+F) (+F)

Katowice rulebook 'takes off' in 2018





A2.(a) How to report the GHG inventory: CRTs + software

TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY
Fuel combustion activities - sectoral approach
(Sheet 1 of 4)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS			EMISSIONS			AMOUNT CAPTURED ⁽⁴⁾
	Consumption (TJ)	NCV/GCV ⁽⁵⁾	CO ₂ ⁽¹⁾ (t/TJ)	CH ₄ (kg/TJ)	N ₂ O (kg/TJ)	CO ₂ ^(2,3) (kt)	CH ₄ (kt)	N ₂ O (kt)	CO ₂ (kt)
I.A. Fuel combustion									
Liquid fuels									
Solid fuels									
Gaseous fuels ⁽⁶⁾									
Other fossil fuels ⁽⁷⁾									
Peat ⁽⁸⁾									
Biomass ⁽⁹⁾									

TABLE 1 SECTORAL REPORT FOR ENERGY
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂	CH ₄	N ₂ O	NO _x	CO	NM VOC	SO _x	Total GHG emissions ⁽¹⁾ CO ₂ equivalents (kt) ⁽²⁾
	(kt)							
Total Energy								
I.A. Fuel combustion activities (sectoral approach)								
1.A.1. Energy industries								
1.A.1.a. Public electricity and heat production								
1.A.1.b. Petroleum refining								
1.A.1.c. Manufacture of solid fuels and other energy industries								

SUMMARY 2 SUMMARY REPORT FOR CO₂ EQUIVALENT EMISSIONS
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ ⁽¹⁾	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃	Total
	CO ₂ equivalents (kt) ⁽²⁾								
total (net emissions)⁽³⁾									
Energy									
I.A. Fuel combustion									
1.A.1. Energy industries									
1.A.2. Manufacturing industries and construction									
1.A.3. Transport									
1.A.4. Other sectors									
1.A.5. Other									
I.B. Fugitive emissions from fuels									
1.B.1. Solid fuels									
1.B.2. Oil and natural gas and other emissions from energy production									
I.C. CO₂ transport and storage									

At COP26 in Glasgow, we agreed:

✓ Common reporting formats for GHG inventories

.... UNFCCC reporting software is under development: do test!

+IPCC software

✓ Possibility to use the 2019 IPCC refinement to the 2006 IPCC GL on a voluntary basis





A2.(b.i) How to report the GHG inventory: NID outline

Main report

- Executive summary
- Chapter 1: National circumstances, institutional arrangements and cross-cutting information (!)
- Chapter 2: Trends in GHG emissions and removals
- Chapter 3: Energy (CRT 1)
- Chapter 4: Industrial processes and product use (CRT 2)
- Chapter 5: Agriculture (CRT 3)
- Chapter 6: Land use, land-use change and forestry (CRT 4)
- Chapter 7: Waste (CRT 5)
- Chapter 8: Other (CRT 6) (if applicable)
- Chapter 9: Indirect CO₂ and N₂O emissions
- Chapter 10: Recalculations and improvements (!)

Annexes

- Annex I: Key categories
- Annex II: Uncertainty assessment
- Annex III: Reference approach
- Annex IV: QA/QC plan
- Annex V: Any additional info
- Annex VI: Common reporting tables
- References





NID outline – e.g. agriculture sector

Chapter 5: Agriculture (CRT sector 3)

5.1. Overview of the sector (e.g. quantitative overview and description, including trends and methodological tiers by category)

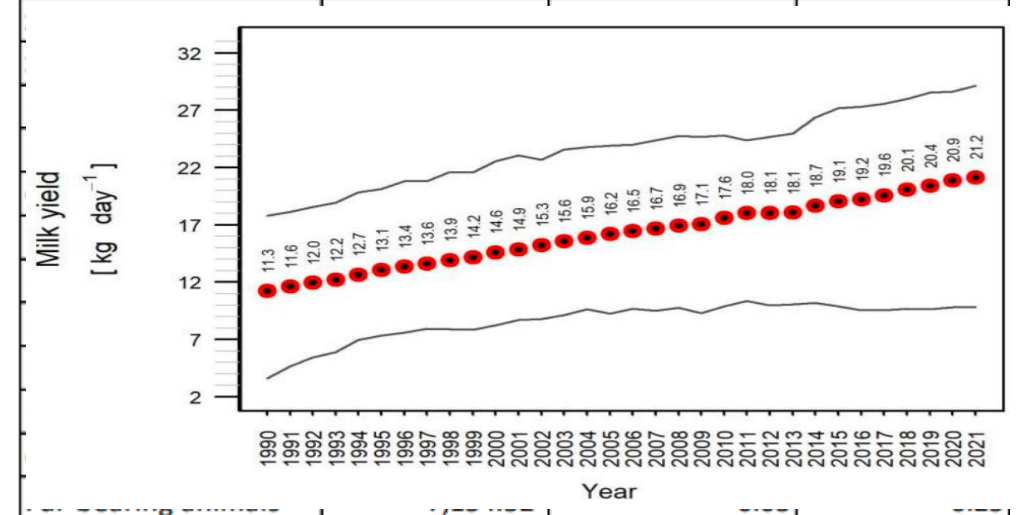
5.2. Category (CRT category number)

- 5.2.1. Category description
- 5.2.2. Methodological issues (choice of methods/activity data/emission factors underlying emission/removals and rationale for their selection) – IPCC Decision trees
- 5.2.3. Description of any flexibility applied
- 5.2.4. Uncertainty assessment & time-series consistency
- 5.2.5. Category-specific QA/QC and verification
- 5.2.6. Category-specific recalculations,
- 5.2.7. Category-specific planned improvements



Based on T2/T3 methods & CS emission factors by EU MS (weighted average)

GREENHOUSE GAS SOURCE CATEGORIES - EUROPEAN UNION (KP)	Year 2020		
	ACTIVITY DATA	IMPLIED EMISSION FACTORS	EMISSIONS
	Population size (1000s)	CH ₄ (kg CH ₄ /head/yr)	CH ₄ (kt)
Dairy cattle	22,507.30	131.42	2957.82
Non-dairy cattle	67,784.37	49.23	3337.35





A2.(b.ii) Suggestions on how to approach the NID

- The NID complements and should help understand the information in the CRTs
- Follow the outline to the extent possible to facilitate the TER
- Focus on mandatory ‘shall’ (recommendations) & continue with ‘should’ (encouragements)
- Provide transparent info on methods, EFs and AD for your key categories
- Be relevant and clear/transparent: A balance between TER and stakeholders (policy & public)
- First inventories can be challenging but there are transparent NIRs in the ICA process: The TERT under the ETF will assist Parties improve further

Annex V*

Outline of the national inventory document, pursuant to the modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement¹





A3. Estimating emissions & removals according to 2006 / 2019 IPCC methods

Decision trees from the IPCC GL:

- To select appropriate methods according to different national circumstances (T1, T2, T3 ~ level of complexity)
- KCA to identify KCs. It is Good Practice to use higher-tier methods for KCs [‘unless the resource requirements to do so are unaffordable’.]

First-time GHG inventories (besides prioritizing your national system):

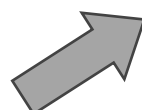
- Focus on estimating all sources and sinks that are relevant in your country (completeness)
- Then, improve estimation methods for key categories guided by the IPCC Decision trees (accuracy)





B. Key principles in the MPGs relevant to GHG inventories

- ✓ To improve reporting over time
- ✓ To promote transparency, accuracy, consistency, comparability & completeness (TACCC)
- ✓ To provide flexibility to developing country Parties that need it in light of their capacities
- ✓ GHG inventories are also essential for assessing collective progress towards the Paris Agreement goals



Reporting elements	'Shall' provision in MPGs	Flexibilities applicable
Key category analysis	95% threshold	85% to 95% threshold
Uncertainty assessment	Quantitative and qualitative for all categories	At least qualitative for key categories
Insignificance threshold	'NE' if lower than 0.05% of NT and 500Kt of CO ₂ e	'NE' if lower than 0.1% of NT and 1000Kt of CO ₂ e
QA/QC	Develop QA/QC Plan	Encouraged to develop
QA/QC	Implement general QC procedures	Encouraged to implement
Greenhouse gases	CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ and NF ₃	CO ₂ , CH ₄ , N ₂ O. Other if in NDC or reported before
Time series	T-2 timeliness	T-3 timeliness
Time series (can be challenging)	Annually between 1990 and t-2	Reference year for NDC, and annually from 2020 to t-3



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for Economic Affairs
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C. GHG inventory review MPGs – Section VII – regarding scope ...

The technical expert review consists of:

- ✓ A review of the consistency of the info submitted by the Party with the MPGs, including flexibilities
- ✓ Identification of areas of improvement
- ✓ Assistance in identifying capacity-building needs

The technical expert review:

- ✓ Shall not review Party's self determination of flexibility, time frames, or whether they have the capacity
- ✓ Will avoid placing undue burden on (all) Parties
- ✓ Shall pay particular attention to national capabilities and circumstances of developing country Parties

First meeting of the BTR lead reviewers,
23-24 April 2024



D. Prioritize the national system as the basis for sustainable quality improvements (EU inventory perspective)

- Formalization of the process and data arrangements – including role of national statistical offices

- Internalization of knowledge & improving capacities

- Involving different national stakeholders in the process

- Seeking regional & international cooperation

- Increased public awareness and scrutiny: inventories at the start of the policy cycle

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	Sum of HFCs and PFCs	SF ₆	N ₂	Total
Total (net emissions) ⁽¹⁾									
CO ₂ equivalent (kt) ⁽²⁾									
I. Energy									
I.A. Fuel combustion									
I.A.1. Energy industries									
I.A.2. Manufacturing industries and construction									
I.A.3. Transport									
I.A.4. Other sectors									
I.A.5. Other									
I.B. Fugitive emissions from fuels									
I.B.1. Solid fuels									
I.B.2. Oil and natural gas and other emissions from non-ferrous metal production									
I.C. CO ₂ transport and storage									



- Formalization of the roles and responsibilities of different actors

- Close collaboration with MS and between experts within the country

- Apply a stepwise approach to sustained improvements

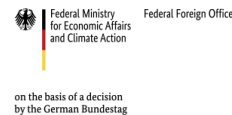
- UNFCCC reviews (to assist the Party improve reporting) and audits

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