The 7th Greenhouse Gas Inventory System Training Workshop

CBIT-GSP
CLIMATE TRANSPARENCY

Outline of Biennial Transparency Report (BTR), national inventory document (NID) and common reporting tables (CRT) for electronic reporting of information on national inventory report

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Asia Transparency Network Coordinador

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National Inventory Document Overview

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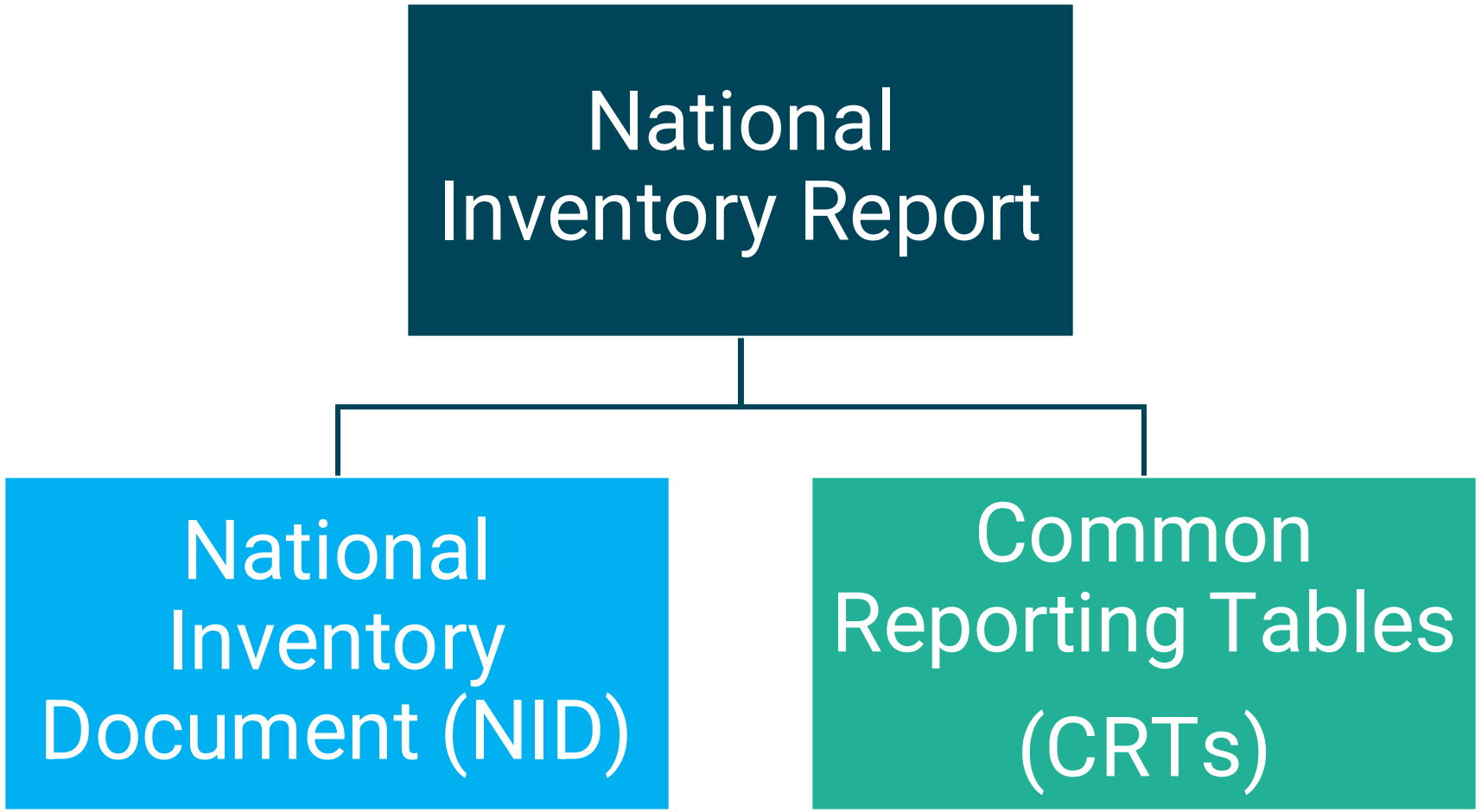
The NIR and the NID



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NID Outline Summary

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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 sector (CRT sector 6)
- **Chapter 9.** Indirect CO_2 and N_2O emissions
- **Chapter 10.** Recalculations and improvements
- **Annexes**

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Executive Summary

- Background information on GHG inventories and climate change
- Summary of trends related to national emissions and removals
- Overview of source and sink category emission estimates and trends
- Other information (e.g. indirect GHGs, precursor gases)
- Key category analysis
- Improvements introduced

Chapter 1: National Circumstances, institutional arrangements and cross-cutting information

1.1 Background information on GHG inventories and climate change

1.2 A description of national circumstances and institutional arrangements

- National entity or national focal point
- Inventory preparation process
- Archiving of information
- Processes for official consideration and approval of inventory

1.3 Brief general description of methodologies

- Including tier methods
- Data sources

1.4 Brief description of 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)

1.5 Brief general description of QA/QC plan and implementation

- (flexibility provided to those developing country Parties that need it in the light of their capacities as per paras. 34–35 of the MPGs)

1.6 General uncertainty assessment

- (flexibility provided to those developing country Parties that need it in the light of their capacities as per paras. 34–35 of the MPGs)

1.7 General assessment of completeness

- Information on completeness
- Description of insignificant categories
- Total aggregate emissions considered insignificant

1.8 Metrics

- (flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 37 of the MPGs)

1.9 Summary of any flexibility applied

- (flexibility provided to those developing country Parties that need it in the light of their capacities as per paras. 4–6 of the MPGs)

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Chapter 2: Trends in greenhouse gas emissions and removals

- 2.1 Description of emission and removal trends for aggregated GHG emissions and removals
- 2.2 Description of emission and removal trends by sector and by gas

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Sectoral Chapters

Chapter 3: Energy

Chapter 4: Industrial processes and product use

Chapter 5: Agriculture

Chapter 6: Land use, land-use change and forestry

Chapter 7: Waste

Chapter 8: Other (CRT sector 6) if applicable

Note: not used by most countries, so far

Elements to include for each sector:

- *Overview of the sector*
- *Category (CRT category number)*
  - *Category description (e.g. characteristics of sources)*
  - *Methodological issues*
  - *Description of any flexibility applied*
  - *Uncertainty assessment and time-series consistency*
  - *Category-specific QA/QC and verification*
  - *Category-specific recalculations,*
  - *Category-specific planned improvements,*

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Sectoral Chapters

Chapter 3: Energy

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

2. Fuel combustion (CRT 1.A), including detailed information on:
   3.2.1. Comparison of the sectoral approach with the reference approach (related to a non-mandatory provision as per para. 36 of the MPGs)
   International bunker fuels (related to a non-mandatory provision as per para. 53 of the MPGs)
   Feedstocks and non-energy use of fuels (related to a non-mandatory provision as per para. 54 of the MPGs)

CHAPTER 9: Indirect carbon dioxide and nitrous oxide emissions (related to nonmandatory provisions as per para. 52 of the MPGs)

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1. Description of sources of indirect emissions in the GHG inventory

2. Methodological issues
Choice of methods, activity data, emission factors, assumptions etc.

3. Uncertainty assessment and time-series consistency

4. Category-specific planned improvements

5. Category-specific recalculations

6. Category specific QA/QC and verification

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Chapter 10: Recalculations and improvements

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10.1 Explanations and justification for recalculations

... including in response to the review process

10.2 Implications for emissions and Removals levels

10.3 Implications for emissions and removals trends

...including time series consistency

10.4 Areas of improvement and/or capacity building in response to the review process

...related to non-mandatory provisions as per para 7(a) and (d) of the MPGs

10.5 Areas of improvement and or capacity building related to the flexibility provisions

...and estimated time frame for improvements .

Related to non mandatory provisions as per para 7 (c-d) of the MPGs

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Annexes to the National Inventory Document

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01 Key Categories

02 Uncertainty Assessment

03 Detailed description of Reference Approach

04 QA/QC Plan

05 Any Other information

06 Common Reporting Tables

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Introduction to Common Reporting Tables

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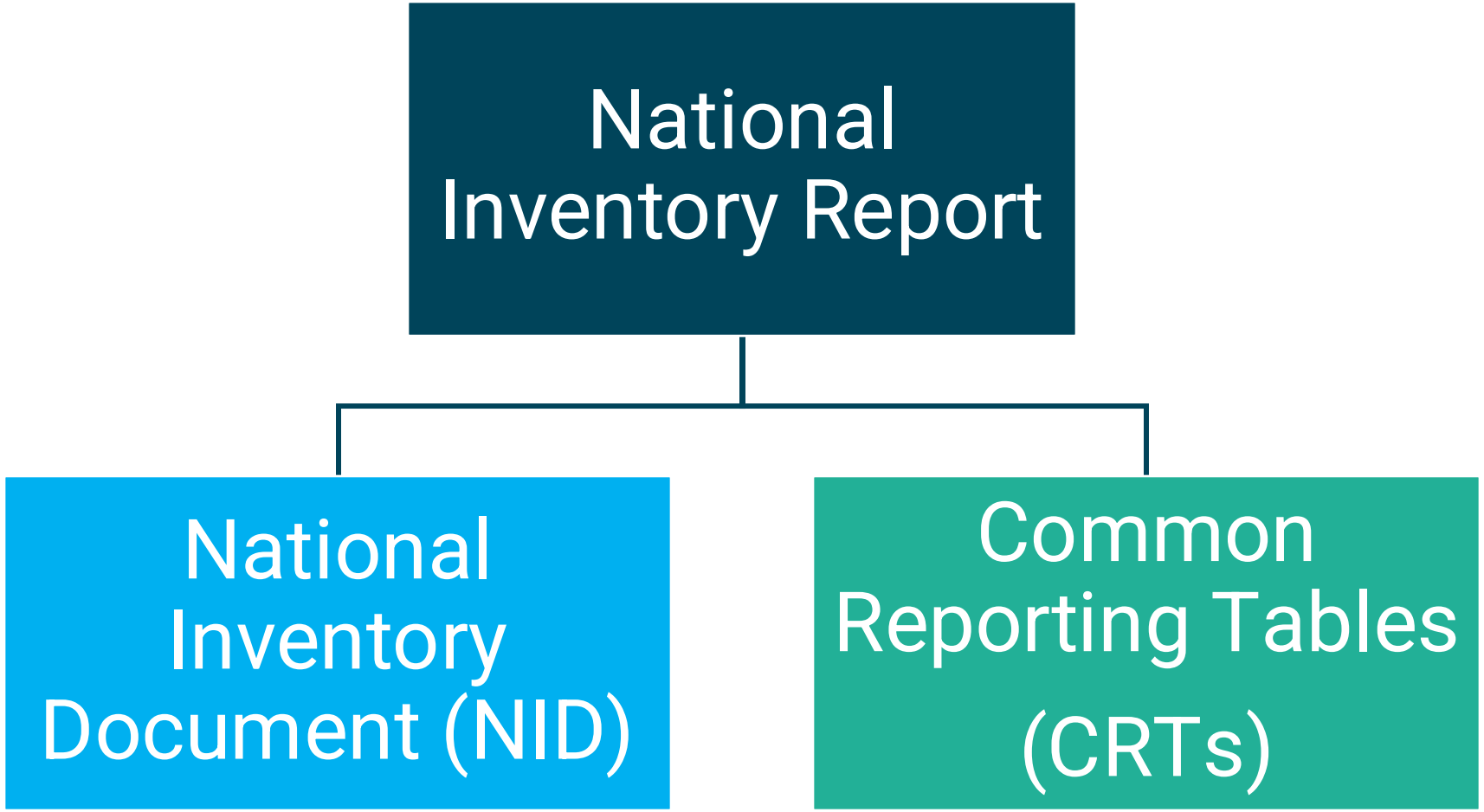
The NIR and the NID



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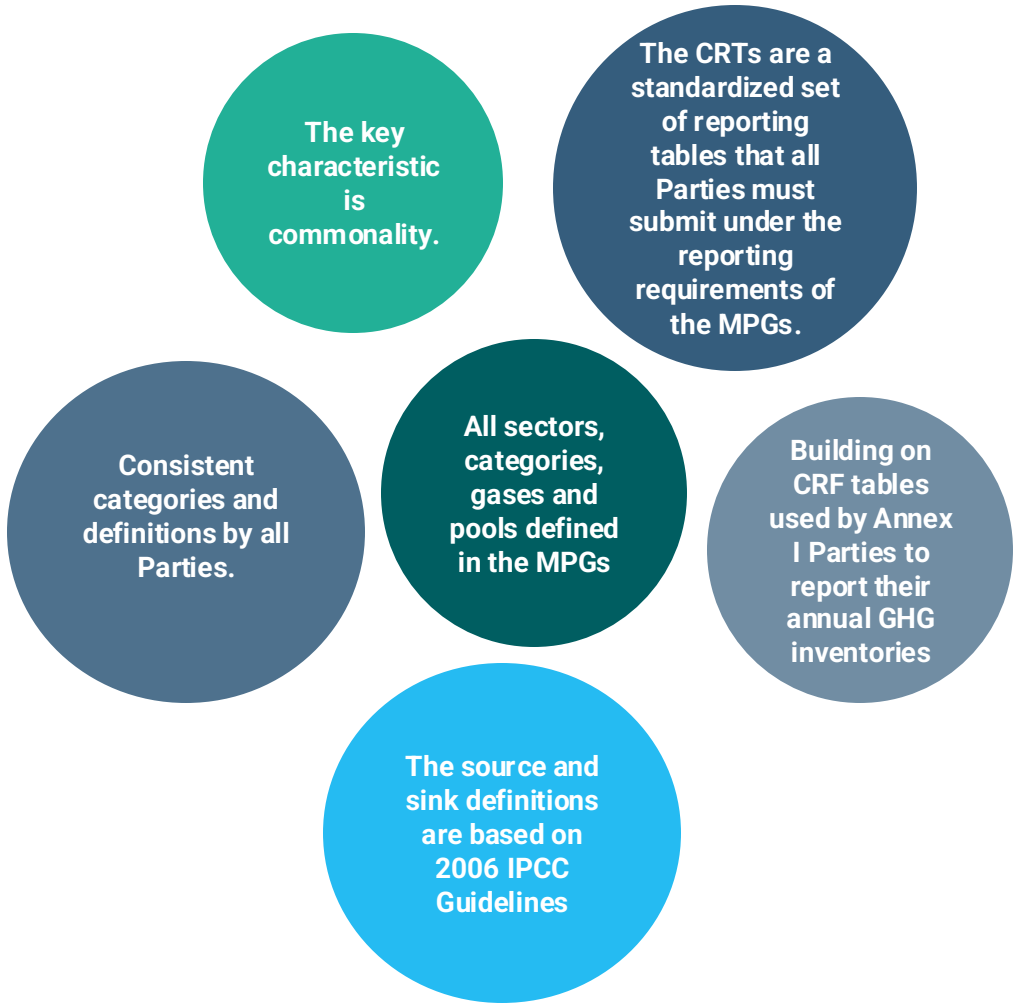
Introduction to the CRTs



Decision 18/CMA.1

'38. Pursuant to Article 13, paragraph 7(a), of the Paris Agreement, each Party shall provide a national inventory report of anthropogenic emissions by sources and removals by sinks of GHGs. The national inventory report consists of a national inventory document and the common reporting tables.

47. Each Party shall report estimates of emissions and removals for all categories, gases and carbon pools considered in the GHG inventory throughout the reported period on a gas by-gas basis in units of mass at the most disaggregated level, in accordance with the IPCC guidelines referred to in paragraph 20 above, using the common reporting tables, including a descriptive summary and figures underlying emission trends, with emissions by sources listed separately from removals by sinks, except in cases where it may be technically impossible to separate information on emissions and removals in the LULUCF sector, and noting that a minimum level of aggregation is needed to protect confidential business and military information.'

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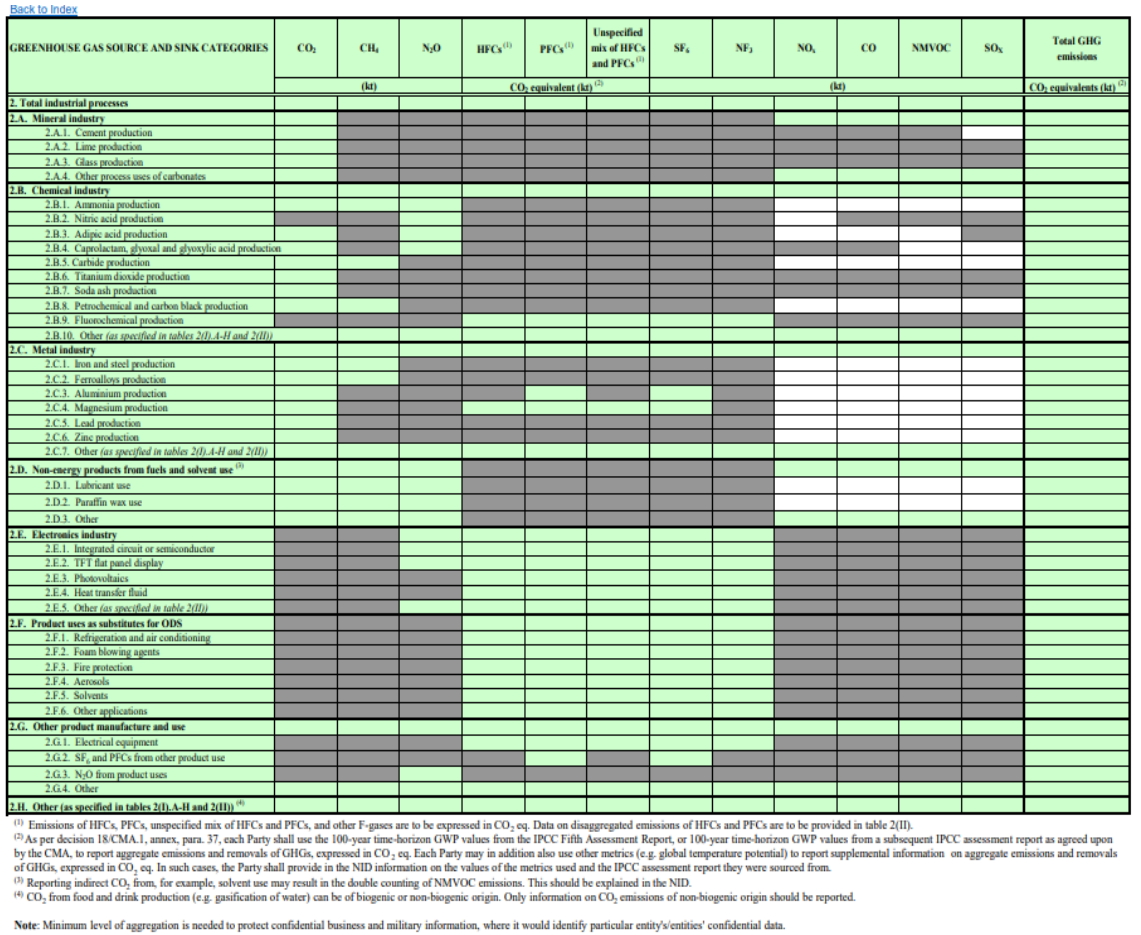
Overview of CRTs

- CRTs contain the reported figures and NID contains the full description of data, methods and assumptions, source of information etc
- Some CRTs contain documentation boxes with background information and relevant references to the NID
- Some CRTs leave space for reporting memo items
- CRTs ensure consistent categories
- The CRTs contain data for all sectors and categories defined in the MPGs.
- The sources and sink definitions are based on the categorization in the 2006 IPCC guidelines.
- Parties may also add country specific categories to the CRTs



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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	HFCs [1]	PFCs [1]	Unspecified mix of HFCs and PFCs [1]	SF_6	NF_3	NO_x	CO	NMVOC	SO_x	Total GHG emissions
	(kt)			CO_2 equivalent (kt) [2]			(kt)						CO_2 equivalents (kt) [2]
2. Total industrial processes													
2.A. Mineral industry													
2.A.1. Cement production													
2.A.2. Lime production													
2.A.3. Glass production													
2.A.4. Other process uses of carbonates													
2.B. Chemical industry													
2.B.1. Ammonia production													
2.B.2. Nitric acid production													
2.B.3. Adipic acid production													
2.B.4. Caprolactam, glyoxal and glyoxylic acid production													
2.B.5. Carbide production													
2.B.6. Titanium dioxide production													
2.B.7. Soda ash production													
2.B.8. Petrochemical and carbon black production													
2.B.9. Fluorochemical production													
2.B.10. Other *(as specified in tables 2(I).A-H and 2(II))*													
2.C. Metal industry													
2.C.1. Iron and steel production													
2.C.2. Ferroalloys production													
2.C.3. Aluminium production													
2.C.4. Magnesium production													
2.C.5. Lead production													
2.C.6. Zinc production													
2.C.7. Other *(as specified in tables 2(I).A-H and 2(II))*													
2.D. Non-energy products from fuels and solvent use [3]													
2.D.1. Lubricant use													
2.D.2. Paraffin wax use													
2.D.3. Other													
2.E. Electronics industry													
2.E.1. Integrated circuit or semiconductor													
2.E.2. TFT flat panel display													
2.E.3. Photovoltaics													
2.E.4. Heat transfer fluid													
2.E.5. Other *(as specified in table 2(I))*													
2.F. Product uses as substitutes for ODS													
2.F.1. Refrigeration and air conditioning													
2.F.2. Foam blowing agents													
2.F.3. Fire protection													
2.F.4. Aerosols													
2.F.5. Solvents													
2.F.6. Other applications													
2.G. Other product manufacture and use													
2.G.1. Electrical equipment													
2.G.2. SF_6 and PFCs from other product use													
2.G.3. N_2O from product uses													
2.G.4. Other													
2.H. Other (as specified in tables 2(I).A-H and 2(II)) [4]													

[1] Emissions of HFCs, PFCs, unspecified mix of HFCs and PFCs, and other F-gases are to be expressed in CO_2 eq. Data on disaggregated emissions of HFCs and PFCs are to be provided in table 2(II).

[2] As per decision 18/CMA.1, annex, para. 37, each Party shall use the 100-year time-horizon GWP values from the IPCC Fifth Assessment Report, or 100-year time-horizon GWP values from a subsequent IPCC assessment report as agreed upon by the CMA, to report aggregate emissions and removals of GHGs, expressed in CO_2 eq. Each Party may in addition also use other metrics (e.g. global temperature potential) to report supplemental information on aggregate emissions and removals of GHGs, expressed in CO_2 eq. In such cases, the Party shall provide in the NID information on the values of the metrics used and the IPCC assessment report they were sourced from.

[3] Reporting indirect CO_2 from, for example, solvent use may result in the double counting of NMVOC emissions. This should be explained in the NID.

[4] CO_2 from food and drink production (e.g. gasification of water) can be of biogenic or non-biogenic origin. Only information on CO_2 emissions of non-biogenic origin should be reported.

Note: Minimum level of aggregation is needed to protect confidential business and military information, where it would identify particular entity's/entities' confidential data.

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Structure of CRTs

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Summary Tables

- Summary 1
- Summary 2

Cross cutting tables

- Table 6
- Table 7
- Table 8
- Table 9
- Table 10
- Flex Summary

Level 1

Sectoral report table

- Energy
- IPPU
- Agriculture
- LULUCF
- Waste

Level 2

Sectoral background table

- Energy
- IPPU
- Agriculture
- LULUCF
- Waste

Level 3

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Structure of CRTs

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Level 3

Sectoral Background Tables

Level 2

Sectoral Report Tables

Level 1

Summary / Cross-sectoral / Trends Tables

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Structure of CRTs

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All Unshaded cells must be filled by Parties; they should contain either a figure or standard notation keys

Grey shaded cells should not be filled as information is expected not to be applicable

Colored shaded cells are automatically completed by software

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	NO_x	CO	NMVOC	SO_x	Total GHG emissions (1)
	(kt)							CO_2 equivalents (kt) (2)
5. Total waste								
5.A. Solid waste disposal								
5.A.1. Managed waste disposal sites								
5.A.2. Unmanaged waste disposal sites								
5.A.3. Uncategorized waste disposal sites								

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION		IMPLIED EMISSION FACTORS		N_2O EMISSIONS		
Land-use category (2)	Area (3) (kha)	N mineralised in mineral soils associated with loss of soil C from soil organic matter (4) (t N/year)	N_2O–N emissions per area (5) (kg N_2O–N/ha)	N_2O–N emissions per unit of N lost through leaching and run-off (kg N_2O–N/kg N)	Direct Emissions	Indirect Emissions (4,6)	Total Emissions
					(kt)		
4(III). Total for all land-use categories							
4(III).A. Forest land (7)							
4(III).A.1. Forest land remaining forest land							
4(III).A.2. Lands converted to forest land (8)							
Drop down list:							

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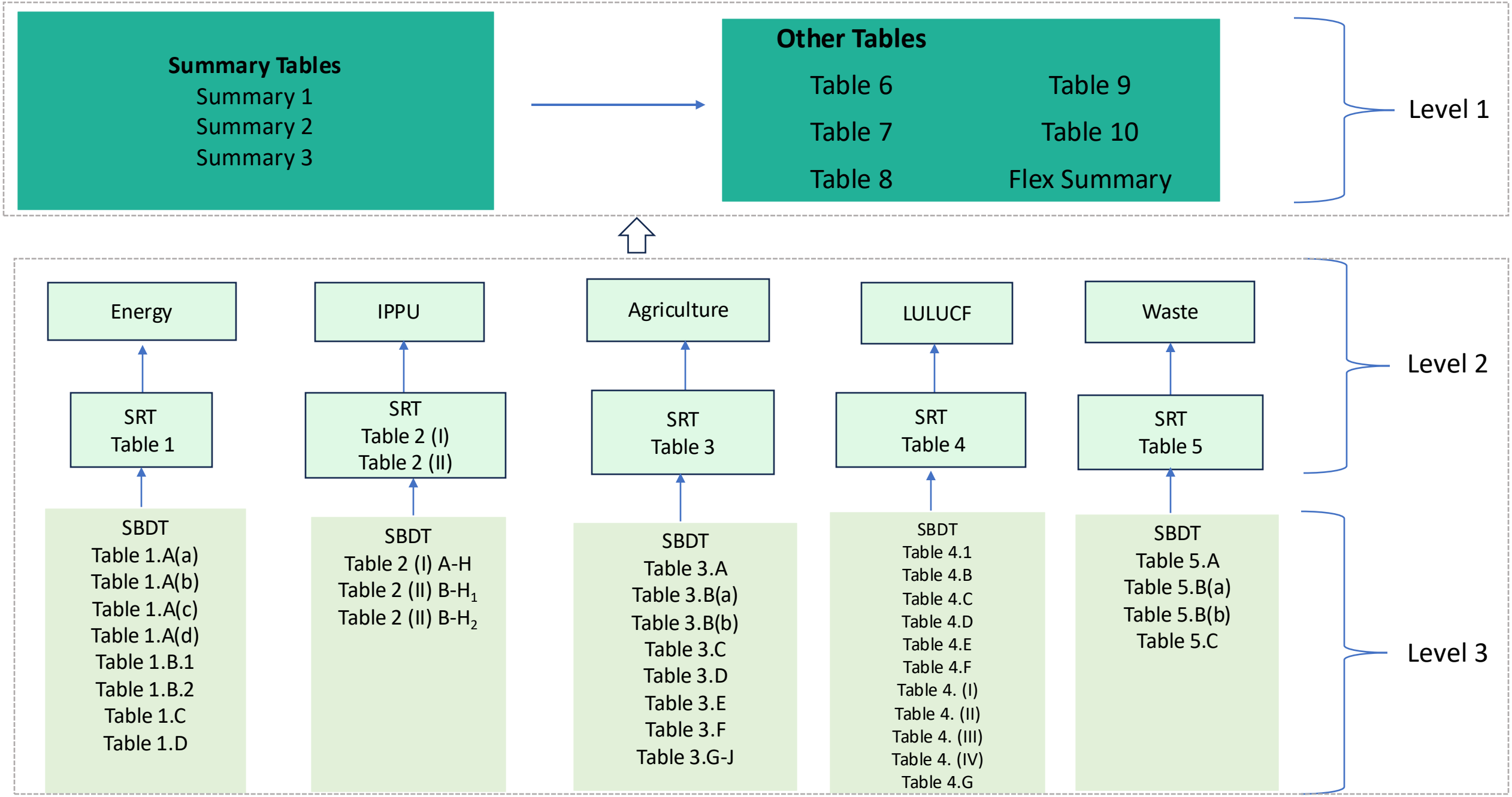
Summary Tables
Summary 1
Summary 2
Summary 3
Other Tables
Table 6
Table 7
Table 8
Table 9
Table 10
Flex Summary
Level 1
Energy
IPPU
Agriculture
LULUCF
Waste
SRT
Table 1
SRT
Table 2 (I)
Table 2 (II)
SRT
Table 3
SRT
Table 4
SRT
Table 5
Level 2
SBDT
Table 1.A(a)
Table 1.A(b)
Table 1.A(c)
Table 1.A(d)
Table 1.B.1
Table 1.B.2
Table 1.C
Table 1.D
SBDT
Table 2 (I) A-H
Table 2 (II) B-H1
Table 2 (II) B-H2
SBDT
Table 3.A
Table 3.B(a)
Table 3.B(b)
Table 3.C
Table 3.D
Table 3.E
Table 3.F
Table 3.G-J
SBDT
Table 4.1
Table 4.B
Table 4.C
Table 4.D
Table 4.E
Table 4.F
Table 4. (I)
Table 4. (II)
Table 4. (III)
Table 4. (IV)
Table 4.G
SBDT
Table 5.A
Table 5.B(a)
Table 5.B(b)
Table 5.C
Level 3

Level 3: Sectoral Background Data Tables

TABLE 2(I).A-H SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES AND PRODUCT USE
Emissions of CO_2, CH_4 and N_2O
(Sheet 1 of 1)

Year
Submission
Country

Back to Index

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS [1]			EMISSIONS [2]			RECOVERY/CAPTURE [3,4]			
	Production/Consumption quantity		CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2 fossil	CO_2 biogenic [6]	CH_4	N_2O
	Description [5]	(kt)	(t/t)			(kt)			(kt)			
2.A. Mineral industry												
2.A.1. Cement production	(e.g. cement or clinker production)											
2.A.2. Lime production												
2.A.3. Glass production												
2.A.4. Other process uses of carbonates												
2.A.4.a. Ceramics												
2.A.4.b. Other uses of soda ash												
2.A.4.c. Non-metallurgical magnesium production												
2.A.4.d. Other *(please specify)*												
2.B. Chemical industry												
2.B.1. Ammonia production [7]												
2.B.2. Nitric acid production												
2.B.3. Adipic acid production												
2.B.4. Caprolactam, glyoxal and glyoxylic acid production												
2.B.4.a. Caprolactam												
2.B.4.b. Glyoxal												
2.B.4.c. Glyoxylic acid												
2.B.5. Carbide production												
2.B.5.a. Silicon carbide												
2.B.5.b. Calcium carbide												
2.B.6. Titanium dioxide production												
2.B.7. Soda ash production												
2.B.8. Petrochemical and carbon black production												
2.B.8.a. Methanol												
2.B.8.b. Ethylene												
2.B.8.c. Ethylene dichloride and vinyl chloride monomer												
2.B.8.d. Ethylene oxide												
2.B.8.e. Acrylonitrile												
2.B.8.f. Carbon black												

... | Table1.B.1 | Table1.B.2 | Table1.C | Table1.D | Table2(I) | **Table2(I).A-H** | Table2(II) | Table2(II).B-Hs1 | Table2(II).B-Hs2 | Table3 | Table3.A | Table3.B(a) | Table3.B(b) | Table3.C | Table3.D | Table3.E

The sectoral background data tables require detailed information on emissions, removals activity data and other relevant information at the category and subcategory level

Most of the data in filled in by the inventory compiler.

- *The exceptions are the cells in which emissions are summed at the category level, along with IEFs or implied carbon stock change factors*

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TABLE 2(I).A-H SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES AND PRODUCT USE
Emissions of CO_2, CH_4 and N_2O
(Sheet 1 of 1)

Year
Submission
Country

Back to Index

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS (1)			EMISSIONS (2)			RECOVERY/CAPTURE (3,4)			
	Production/Consumption quantity		CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2 fossil	CO_2 biogenic (5)	CH_4	N_2O
	Description (5)	(kt)	(t/t)			(kt)			(kt)			
2.A. Mineral industry												
2.A.1. Cement production	(e.g. cement or clinker production)											
2.A.2. Lime production												
2.A.3. Glass production												
2.A.4. Other process uses of carbonates												
2.A.4.a. Ceramics												
2.A.4.b. Other uses of soda ash												
2.A.4.c. Non-metallurgical magnesium production												
2.A.4.d. Other *(please specity)*												
2.B. Chemical industry												
2.B.1. Ammonia production (7)												
2.B.2. Nitric acid production												
2.B.3. Adipic acid production												
2.B.4. Caprolactam, glyoxal and glyoxylic acid production												
2.B.4.a. Caprolactam												
2.B.4.b. Glyoxal												
2.B.4.c. Glyoxylic acid												
2.B.5. Carbide production												
2.B.5.a. Silicon carbide												
2.B.5.b. Calcium carbide												
2.B.6. Titanium dioxide production												
2.B.7. Soda ash production												
2.B.8. Petrochemical and carbon black production												
2.B.8.a. Methanol												
2.B.8.b. Ethylene												
2.B.8.c. Ethylene dichloride and vinyl chloride monomer												
2.B.8.d. Ethylene oxide												
2.B.8.e. Acrylonitrile												
2.B.8.f. Carbon black												

Activity data, kt

Implied Emission Factor, t/t

Emissions, kt

Recovery/capture, kt

... | Table1.B.1 | Table1.B.2 | Table1.C | Table1.D | Table2(I) | Table2(I).A-H | Table2(II) | Table2(II).B-Hs1 | Table2(II).B-Hs2 | Table3 | Table3.A | Table3.B(a) | Table3.B(b) | Table3.C | Table3.D | Table3.E

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Level 2: Sectoral Reporting Tables

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- **Level 2 aggregate the data from the sectoral background data tables** at the sectoral level.
- One level 2 table for each sector.
- Emissions are reported on a mass basis (kt) and a total CO2 eq basis

Energy	IPPU	Agriculture	LULUCF	Waste
SBDT Table 1.A(a) Table 1.A(b) Table 1.A(c) Table 1.A(d) Table 1.B.1 Table 1.B.2 Table 1.C Table 1.D	SBDT Table 2 (I) A-H Table 2 (II) B-H	SBDT Table 3.A Table 3.B(a) Table 3.B(b) Table 3.C Table 3.D Table 3.E Table 3.F Table 3.G-J	SBDT Table 4.1 Table 4.B Table 4.C Table 4.D Table 4.E Table 4.F Table 4. (I) Table 4. (II) Table 4. (III) Table 4. (IV) Table 4.G	SBDT Table 5.A Table 5.B(a) Table 5.B(b) Table 5.C

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Level 2: Sectoral Reporting Tables - Information

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

Year
Submission
Country

Back to Index

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2	CH_4	N_2O	NO_x	CO	NMVOC	SO_x	Total GHG emissions [1]
				(kt)				CO_2 equivalents (kt) [2]
5. Total waste								
5.A. Solid waste disposal								
5.A.1. Managed waste disposal sites								
5.A.2. Unmanaged waste disposal sites								
5.A.3. Uncategorized waste disposal sites								
5.B. Biological treatment of solid waste								
5.B.1. Composting								
5.B.2. Anaerobic digestion at biogas facilities								
5.C. Incineration and open burning of waste								
5.C.1. Waste incineration								
5.C.2. Open burning of waste								
5.D. Wastewater treatment and discharge								
5.D.1. Domestic wastewater								
5.D.2. Industrial wastewater								
5.D.3. Other								
5.E. Other *(please specify)*								
Memo item: [3]								
5.F.1. Long-term storage of C in waste disposal sites								
5.F.1.a. Annual change in total long-term C storage								
5.F.1.b. Annual change in total long-term C storage in HWP waste [4]								

GHG emissions, kt

NOx, CO, NMVOC and SOx, kt

Total GHG CO_2 eq.

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Level 1: Summary Tables

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Summary 1:

- Summary report of total emissions by sector and category on a mass basis (CO_2, CH_4 and N_2O) and a CO_2 eq basis (fluorinated gases, indirect emissions and total emissions)

Summary 2

- Summary report for CO_2 eq emissions

Summary 3

- Summary report for methods and EFs that the Party used for its estimates (e.g. IPCC tier 1 or tier 2 methods)

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Summary 1 Summary Report for national GHG inventories

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The summary tables are automatically completed by excel based on the data provided in the background data tables (level 3)

"Total GHG emissions/removals" include CO2, CH4, N2O, HFCs, PFCs, unspecified mix of HFCs and PFCs, SF6, NF3

100-year time-horizon GWP values from the IPCC Fifth Assessment Report, or 100-year time-horizon GWP values from a subsequent IPCC assessment report

SUMMARY 1 SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES
(Sheet 1 of 1)

Year
Submission
Country

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Net CO_2 emissions/ removals	CH_4	N_2O	HFCs [1]	PFCs [1]	Unspecified mix of HFCs and PFCs [1]	SF_6	NF_3	NO_x	CO	NMVOC	SO_x	Total GHG emissions/removals [2]
	(kt)			CO_2 equivalents (kt) [3]			(kt)						CO_2 equivalents (kt) [3]
Total national emissions and removals													
1. Energy													
1.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													
1.B. Fugitive emissions from fuels													
1.B.1. Solid fuels													
1.B.2. Oil and natural gas and other emissions from energy production													
1.C. CO_2 Transport and storage													

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Summary 2 Summary Report for CO_2 eq. emissions

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SUMMARY 2 SUMMARY REPORT FOR CO_2 EQUIVALENT EMISSIONS
(Sheet 1 of 1)

Year
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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 [1]	CH_4	N_2O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF_6	NF_3	Total
	CO_2 equivalents (kt) [2]								
Total (net emissions) [1]									
1. Energy									
1.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									
1.B. Fugitive emissions from fuels									
1.B.1. Solid fuels									
1.B.2. Oil and natural gas and other emissions from energy production									
1.C. CO_2 transport and storage									

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Summary tables: Memo items

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Parties are asked to report emissions from international aviation and international navigation and multilateral operations, as well as CO_2 emissions from biomass and CO_2 captured, **under memo items.**

- These emissions should not be included in the national total emissions from the energy sector.

Amounts of biomass used as fuel are included in the national energy consumption but the corresponding CO_2 emissions are not included in the national total as it is assumed that the biomass is produced in a sustainable manner.

- If the biomass is harvested at an unsustainable rate, net CO_2 emissions are accounted for as a loss of biomass stocks in the Land Use, Land-use Change and Forestry sector.

Memo items: (3)									
1.D.1. International bunkers									
1.D.1.a. Aviation									
1.D.1.b. Navigation									
1.D.2. Multilateral operations									
1.D.3. CO_2 emissions from biomass									
1.D.4. CO_2 captured									
5.F.1. Long-term storage of C in waste disposal sites									
Indirect N_2O									

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Level 1: Cross-cutting tables

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Table 6	Table 7	Table 8	Table 9	Table 10	Flexibility provisions
• Indirect emissions of N2O and CO2	• Key categories	• Recalculations in the Party's inventory relative to its previous submission	• Categories or subcategories that were not estimated • Allocated to a sector other than that indicated by the 2006 IPCC Guidelines.	• Summary of emission trends over the entire time series (e.g. 1990–2022).	• Summary table on the use of flexibility provisions

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Table 6: Indirect emissions of N2O and CO2

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TABLE 6 CROSS-SECTORAL REPORT: Indirect emissions of N_2O and CO_2
(Sheet 1 of 1)

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GREENHOUSE GAS EMISSIONS AND REMOVALS	SOURCE EMISSIONS					INDIRECT EMISSIONS	
	CH_4	CO	NMVOC	NOx	NH_3	CO_2 (1)	N_2O (2)
	(kt)					(kt)	
Total							
1. Energy							
2. Industrial processes and product use							
3. Agriculture (3)							
4. LULUCF (3)							
5. Waste							
6. Other *(as specified in summary1)*							

Table 7: Summary overview for key categories

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TABLE 7 SUMMARY OVERVIEW FOR KEY CATEGORIES
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Threshold used in identifying key categories [1]:	[85][95]%

KEY CATEGORIES OF EMISSIONS AND REMOVALS [2]	Gas	Criteria used for key source identification		Key category excluding LULUCF	Key category including LULUCF
		L	T		
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CO_2				
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	CH_4				
1.A.1 Fuel combustion - Energy Industries - Liquid Fuels	N_2O				
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CO_2				
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	CH_4				
1.A.1 Fuel combustion - Energy Industries - Solid Fuels	N_2O				
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CO_2				
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	CH_4				
1.A.1 Fuel combustion - Energy Industries - Gaseous Fuels	N_2O				
1.A.1 Fuel combustion - Energy Industries - Other Fossil Fuels	CO_2				
1.A.1 Fuel combustion - Energy Industries - Other Fossil Fuels	CH_4				
1.A.1 Fuel combustion - Energy Industries - Other Fossil Fuels	N_2O				

Table 8: Recalculation- Recalculated data

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2					
	Previous submission	Latest submission	Difference	Difference (1)	Impact of recalculation on total emissions without LULUCF (2)	Impact of recalculation on total emissions with LULUCF (3)
	CO_2 equivalents (kt) (4)			(%)		
Total national emissions and removals						
1. Energy						
1.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						
1.B. Fugitive emissions from fuels						
1.B.1. Solid fuels						
1.B.2. Oil and natural gas and other emissions from energy production						
1.C. CO_2 transport and storage						

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Table 8: Recalculation- Recalculated data

Estimate the percentage change due to recalculation with respect to the previous submission:

- Percentage change = 100 x (latest submission–previous submission)/previous submission

			Previous submission	Latest submission	Difference	Difference (1)
			CO_2 equivalents (kt)			(%)
Total CO_2 equivalent emissions with LULUCF						
Total CO_2 equivalent emissions without LULUCF						

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Table 9: Completeness - information on notation keys

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Sources and sinks not estimated ("NE") (1,2)			
GHG	**Sector (3)**	**Source/sink category (3)**	**Explanation**
CO_2			
CH_4			
N_2O			
HFCs			
PFCs			
Unspecified mix of HFCs and PFCs			
SF_6			
NF_3			

Explanation of the reason for each source/sink category for which **"NE" is entered in the sectoral tables.**

Explanation of the reason for each source/sink for which the notation key **"IE" (included elsewhere) is used in the sectoral tables.**

Table 10: Emissions trends

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GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Reference year/period for NDC [1]	Base year [2]	1990 [1]	(Years 1991 to 2019)	(Years 1991 to 2019)	(Years 1991 to 2019)	2020	(Years 2021 to latest reported year)	(Years 2021 to latest reported year)	(Years 2021 to latest reported year)	Change from [1990][base year][reference[year][period]] to latest reported year
	kt CO_2 equivalents (kt) [3]										%
Total (net emissions) [4]											
1. Energy											
1.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											
1.B. Fugitive emissions from fuels											
1.B.1. Solid fuels											
1.B.2. Oil and natural gas and other emissions from energy production											
1.C. CO_2 Transport and storage											

Parties shall report a consistent annual time series starting from 1990.

Those developing country Parties that need flexibility in the light of their capacities with respect to this provision have the flexibility to instead report data covering, at a minimum, the reference year/period for its NDC under Article 4 of the Paris Agreement and, in addition, a consistent annual time series from at least 2020 onwards.

Table 11: Summary of flexibility provisions

MPG flexibility provision	Year	Sector	Category	Gas	Description of the application of flexibility	Clarification of capacity constraint	Timeframe for improvement	Progress made in addressing areas of improvement

This table is used on a voluntary basis.

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Introduction to the CRTs

- Developing country Parties that need flexibility in the light of their capacities may collapse relevant rows, columns and tables in cases where they have applied flexibility (e.g. if they do not have capacity to report *on HFCs, PFCs,SF6 or NF3).
- The Party should explain in any corresponding documentation boxes their application of flexibility

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Notation Keys

- “NO” (not occurring) for categories or processes, including recovery, that do not occur within a country.
- “NE” (not estimated) for activity data and/or emissions by sources and removals by sinks of GHGs that have not been estimated but for which a corresponding activity may occur within a country; Where “NE” is used by a country to report emissions or removals of CO_2, N_2O, CH_4, HFCs, PFCs, SF_6 or NF_3, the country must indicate in both the NID and the CRT 9 why such emissions or removals have not been estimated.
- “NA” (not applicable) for activities under a given category that do occur within the country but do not result in emissions or removals of a specific gas; If the cells for categories in the CRT for which “NA” is applicable are shaded gray they do not need to be filled in.
- “IE” (included elsewhere) for emissions by sources and removals by sinks of GHGs estimated but included elsewhere in the inventory instead of under the expected category. Where “IE” is used, the country should indicate, in CRT 9 where in the inventory the emissions or removals for the displaced source or sink category have been included and explain the deviation.
- “C” (confidential) for emissions by sources and removals by sinks of GHGs where the reporting would involve the disclosure of confidential information.
- "FX" (flexibility) for cells where data is not available or reported because of a flexibility provision applied by a country that needed flexibility in the light of its capacity

Summary

- The CRTs essentially contains the emissions and removals numerical data used in the calculations, whereas the NID describes how those emissions and removals estimates were obtained.
- In the CRTs, unshaded cells show data completed by Parties, in the grey shaded cells information is not expected to exist or be provided; and colored shaded cells are automatically completed by the software when Parties submit their data
- In the CRTs unshaded cells should be completed with either data (numbers) or notation keys to meet the completeness requirements.
- The CRTs can be split into three distinct levels of aggregation:
  - *Sectoral background data tables (level 3)*
  - *Sectoral reporting tables (level 2)*
  - *Summary and cross-cutting tables (Level 1)*
- The CRTs are generated by the UNFCCC GHG inventory reporting tool

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Thank you for your attention !

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Please reach out to us for any question, comments or suggestions!

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