

Introduction to the MPGs for National Inventory Reports

Reporting on the Paris Agreement

- The Paris Agreement establishes the ETF designed to build confidence that all countries are doing their part in this global effort.
- The rules for implementing the ETF are set out in the [modalities, procedures and guidelines](#) (MPGs) (CMA1, 2018) and in the [guidance for operationalizing the MPGs](#) (CMA3, 2021).
- The MPGs are based on a set of guiding principles and define the information to be submitted, temporary arrangements, technical experts review (TER) and the facilitative, multilateral consideration of progress process.
- The core element of ETF reporting are the [Biennial Transparency Reports](#) (BTRs), which replace the Biennial Update Reports (BURs) and are due to be submitted every two years starting in 2024.

Chapters of the MPGs

Chapter VIII

Facilitative, multilateral consideration of progress

Chapter VII

Technical expert review

Chapter VI

Information on financial, technology development and transfer and capacity-building support needed and received under Articles 9–11 of the Paris Agreement

Chapter 1

Introduction

Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement
(decision 18/CMA.1 and its annex)

Chapter V

Information on financial, technology development and transfer and capacity-building support provided and mobilized under Articles 9–11 of the Paris Agreement

Chapter II

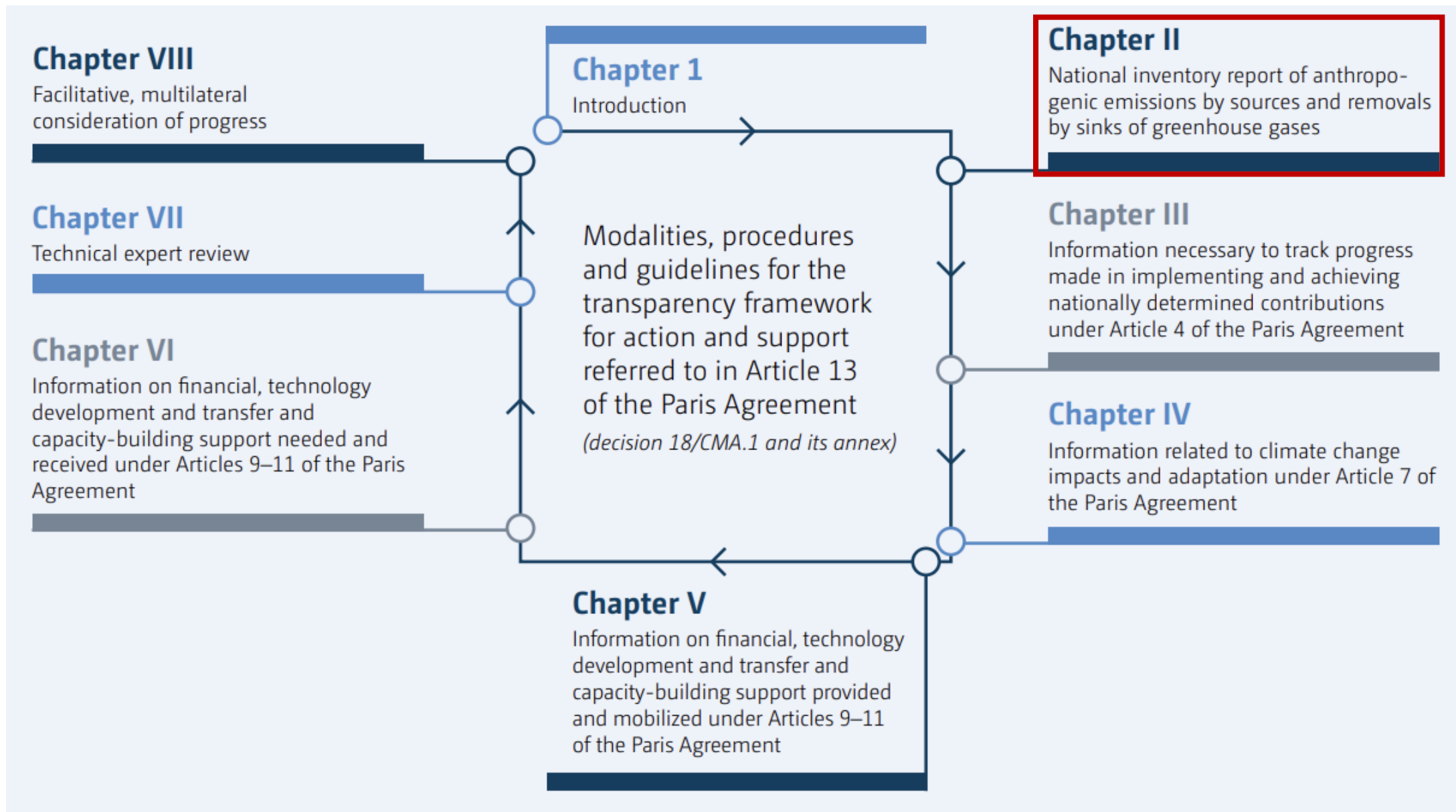
National inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases

Chapter III

Information necessary to track progress made in implementing and achieving nationally determined contributions under Article 4 of the Paris Agreement

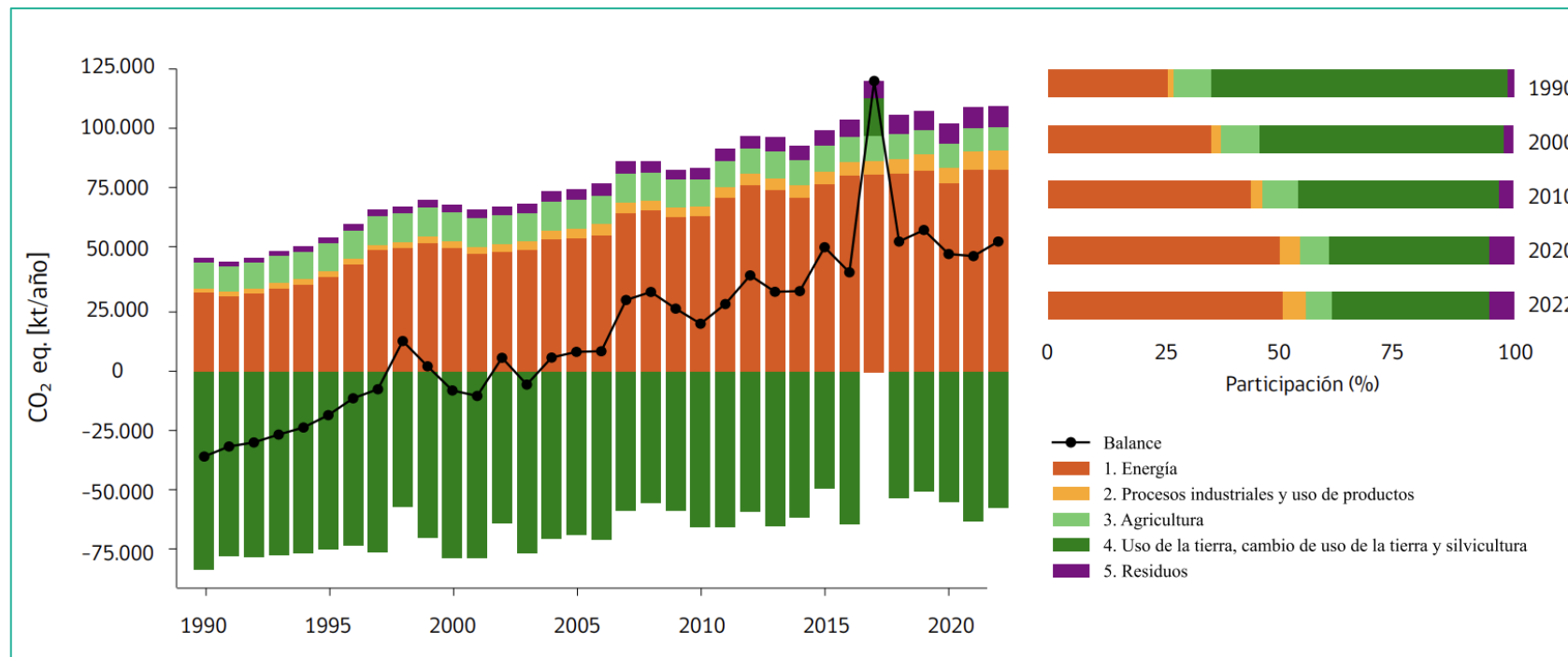
Chapter IV

Information related to climate change impacts and adaptation under Article 7 of the Paris Agreement



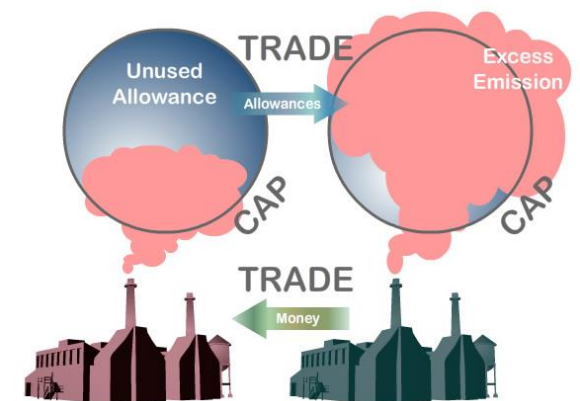
National GHG Inventories

- National GHG Inventories (NGI) consist of **an exhaustive account of each anthropogenic GHG** released or absorbed in the atmosphere in a specific geographical area and period, generally corresponding to a calendar year.



Benefits of National GHG Inventories

- Identify the **economic sectors with the greatest contribution** to climate change;
- Provide **useful information for planning and evaluating economic development**;
- Provide useful information to address **other environmental problems**;
- Identify **gaps in national statistics**;
- Promotes **multidisciplinary collaboration between organizations**;
- Assessment of **mitigation actions**, and guidelines for Long-term Low Emissions and Development Strategies (LT-LEDS); and
- Provide the basis for **emissions trading schemes**.



Reporting requirement for NGI under Paris Agreement

Article 13 of the Paris Agreement

National inventory report (NIR) of GHG emissions

7. **Each Party shall** regularly provide the following information:

(a) A **national inventory report** of anthropogenic emissions by sources and removals by sinks of greenhouse gases, prepared using good practice methodologies accepted by the IPCC and agreed upon by the Conference of the Parties serving as the meeting of the Parties to this Agreement;

Decision 18/CMA.1, Annex, Chapter II

National inventory document (NID) and Common reporting tables (CRT)

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 NIR consists of a **national inventory document** and the **common reporting tables**. Each Party shall report the information referred to in paragraphs 39–46 below, recognizing the associated flexibilities provided for those developing country Parties that need them in the light of their capacities.

Decision 5/CMA.3

1. **Adopts:**

(a) The **common reporting tables** referred to in chapter II of the annex to decision 18/CMA.1 for the electronic reporting of the information in the NIR of anthropogenic emissions by sources and removals by sinks of GHG, as contained in annex I;

NIR components for reporting

FCCC/PA/CMA/2021/10/Add.2

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

[English only]

EXECUTIVE SUMMARY

ES.1. Background information on GHG inventories and climate change (e.g. as it pertains to the national context)

ES.2. Summary of trends related to national emissions and removals

ES.3. Overview of source and sink category emission estimates and trends

ES.4. Other information (e.g. indirect GHGs, precursor gases)

ES.5. Key category analysis (flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 25 of the MPGs)

ES.6. Improvements introduced (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)

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

1.1. Background information on GHG inventories and climate change (e.g. as it pertains to the national context, to provide information to the general public)

1.2. A description of national circumstances and institutional arrangements

1.2.1. National entity or national focal point

1.2.2. Inventory preparation process

1.2.3. Archiving of information

1.2.4. Processes for official consideration and approval of inventory

1.3. Brief general description of methodologies (including tiers used) and data sources used

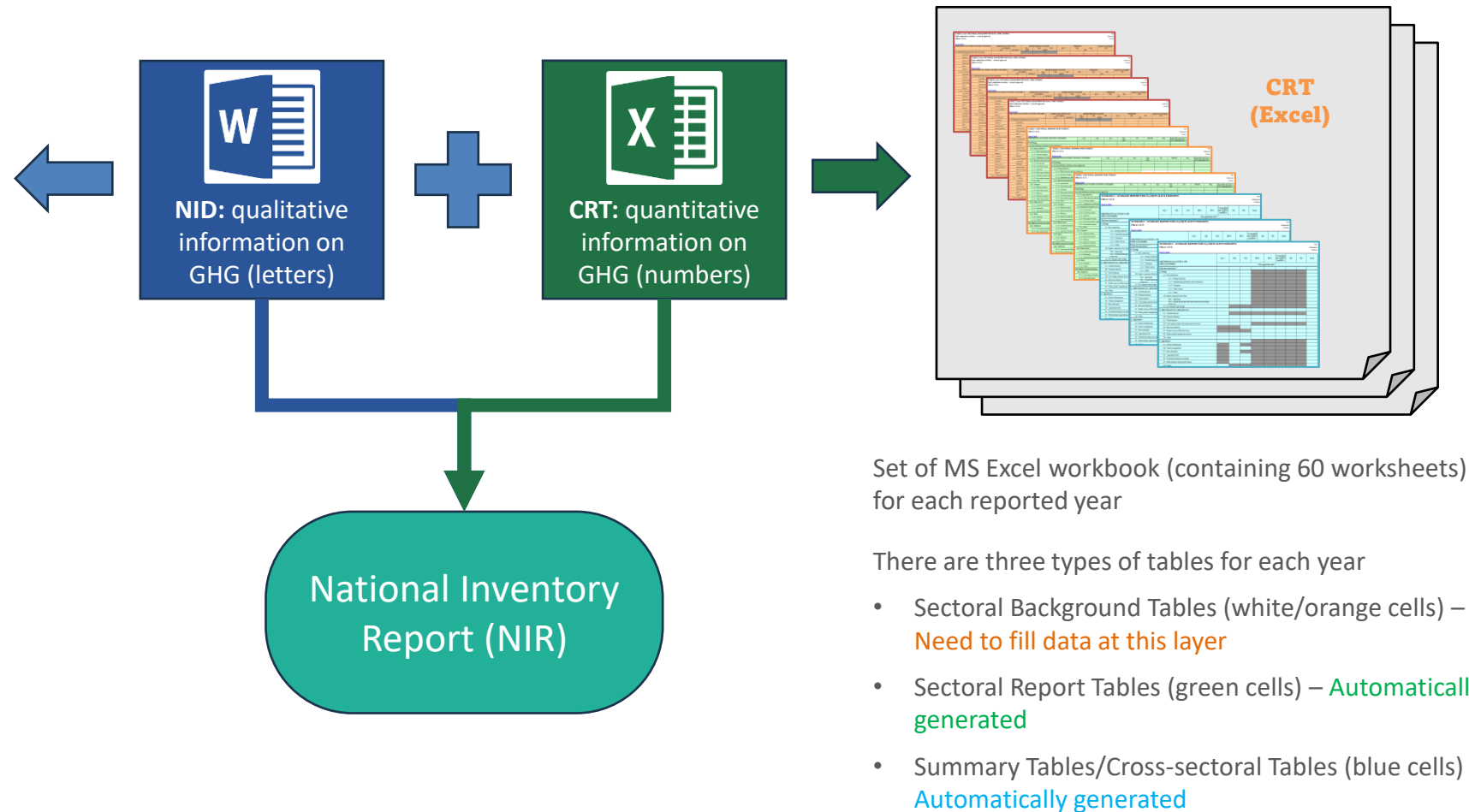
1.4. Brief description of key categories (flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 25 of the MPGs)

1.5. Brief general description of QA/QC plan and implementation (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)

1.6. General uncertainty assessment, including data pertaining to the overall uncertainty of inventory totals (flexibility provided to those developing country Parties that need it in the light of their capacities as per para. 29 of the MPGs)

* The list of the acronyms and abbreviations used in this annex can be found at the end of the document.

¹ Use of the outline by Parties is as per para. 2 of decision 5/CMA.3.



Chapter II. National inventory report of anthropogenic emissions by sources and removals by sinks of GHG

A. Definitions (17)

B. National circumstances and institutional arrangements (18-19)

C. Methods

1. Methodologies, parameters and data (20-24)
2. Key category analysis (25)
3. Time-series consistency and recalculations (26-28)
4. Uncertainty assessment (29)
5. Assessment of completeness (30-33)
6. Quality assurance/quality control (34-36)

D. Metrics (37)

E. Reporting guidance (38)

1. Information on methods and cross-cutting elements (39-46)
2. Sectors and gases (47-56)
3. Time series (57-58)

A. Definitions

17. The definitions used for the **principles of inventories** shall be the definitions provided for in the 2006 IPCC Guidelines, Volume 1, Chapter 1, Section 1.4

Indicators of inventory quality are:

Transparency	There should be clear and sufficient documentation to enable individuals or groups other than the inventors to understand how the inventory was produced.
Completeness	Estimates should be declared for all relevant source and sink categories, and GHGs, across the country's entire territorial coverage.
Consistency	Estimates for different years, gases and categories should be made in such a way that differences between years and categories reflect actual differences in the emissions balance and should reflect actual annual fluctuations in emissions or removals, without being subject to changes resulting from methodological differences.
Comparability	Inventory should be reported in a way that allows comparison with inventories for other countries.
Accuracy	Should not contain excessive or insufficient estimates, to the extent that it can be judged. This means investing all the effort needed to eliminate bias in estimates.

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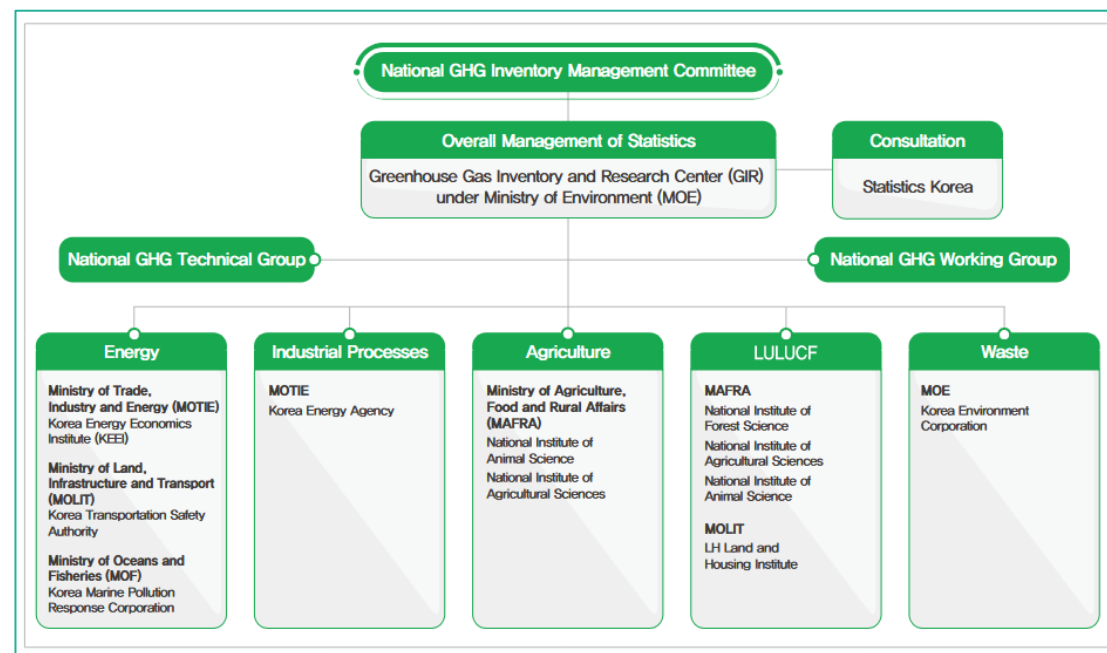
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B. National circumstances and institutional arrangements

18. Each Party **should** implement and maintain national inventory arrangements, including institutional, legal and procedural arrangements for the continued estimation, compilation and timely reporting of NIR [...]



19. Each Party **shall** report on the following functions related to inventory **planning, preparation and management**:

- (a) Its national entity or national focal point
- (b) Its inventory preparation process
- (c) Its archiving of all information for the reported time series
- (d) Its processes for the official consideration and approval of the NGI

Chapter II. National inventory report...

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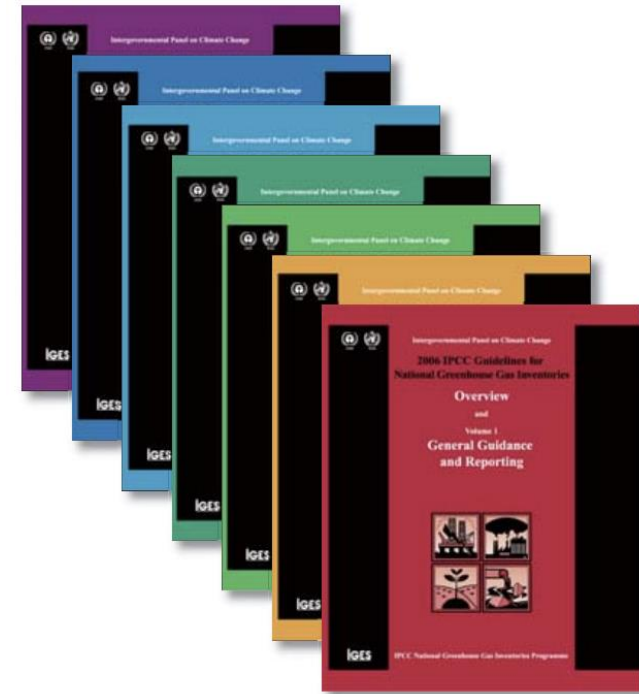
1. Information on methods and cross-cutting elements (39-46)
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3. Time series (57-58)

1. Methodologies, parameters and data (1/2)

20. Each Party **shall** use the **2006 IPCC Guidelines** [...]. Each Party is **encouraged** to use the **2013 Supplement: Wetlands**.

21. Each Party **shall** use **methods** from the IPCC guidelines [...]. Each Party **should** make every effort to use a recommended method (tier level) for key categories in accordance with those IPCC guidelines.

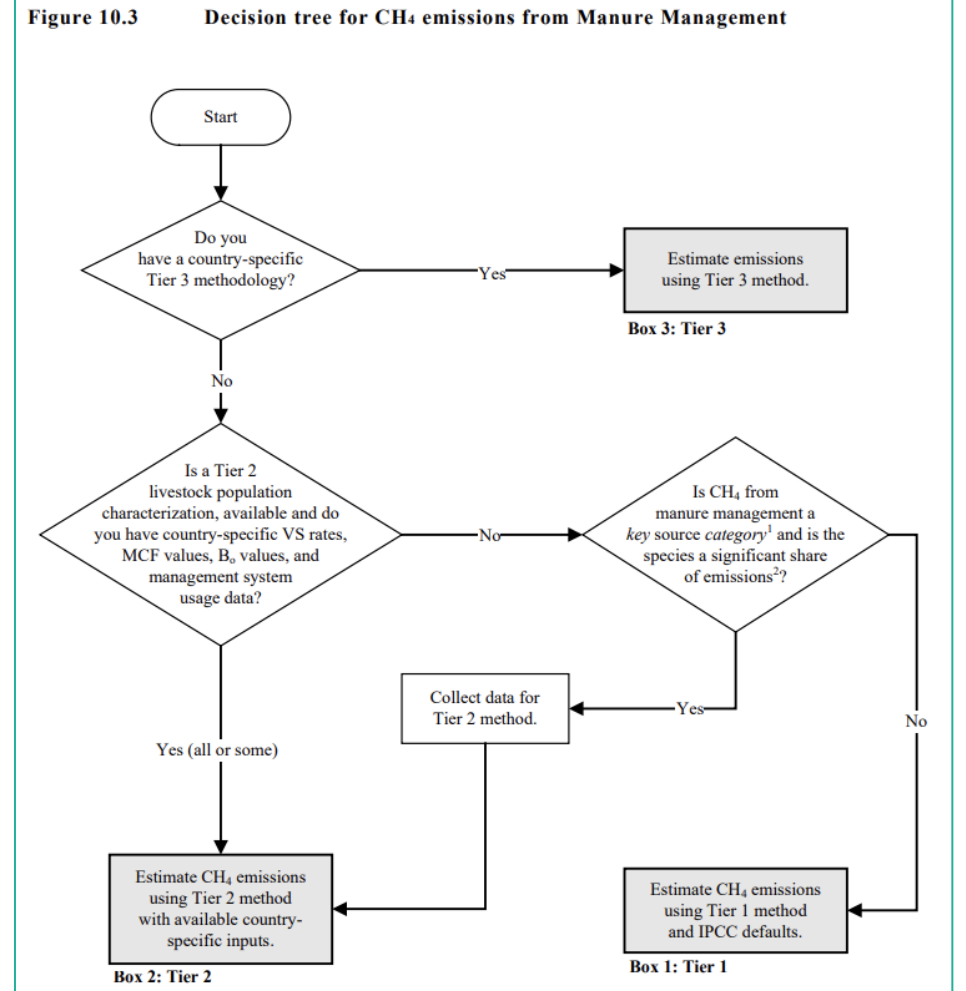
22. Each Party **may** use **nationally appropriate methodologies** if they better reflect its national circumstances and are consistent with the IPCC guidelines. In these cases, each Party **shall** transparently explain national methods, data and/or parameters selected.



1. Methodologies, parameters and data (2/2)

23. A Party **may** be unable to adopt a **higher tier method** for a particular key category owing to lack of resources. In such cases, the Party **may** use a tier 1 approach, and **shall** clearly document why the methodological choice was not in line with the corresponding decision tree of the IPCC guidelines. The Party **should** prioritize for future improvement any key categories for which the good practice method elaborated in the IPCC guidelines [...] cannot be used.

24. Each Party is **encouraged** to use country-specific and regional **emission factors** (EF) and **activity data** (AD), where available, or to propose plans to develop them, in accordance with the good practice elaborated in the IPCC guidelines [...].



2. Key category analysis

25. Each Party **shall** identify **key categories** for:

- the starting year and the latest reporting year [...],
- including and excluding LULUCF categories,
- using approach 1,
- for both level and trend assessment,

by implementing a key category analysis consistent with the IPCC guidelines [...];

TABLE 7 SUMMARY OVERVIEW FOR KEY CATEGORIES (Sheet 1 of 1)						Year
Back to Index						Submission
						Country
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 ₂ O					
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 ₂ O					
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 ₂ O					
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 ₂ O					
1.A.1 Fuel combustion - Energy Industries - Peat	CO ₂					
1.A.1 Fuel combustion - Energy Industries - Peat	CH ₄					
1.A.1 Fuel combustion - Energy Industries - Peat	N ₂ O					
1.A.1 Fuel combustion - Energy Industries - Biomass	CH ₄					
1.A.1 Fuel combustion - Energy Industries - Biomass	N ₂ O					

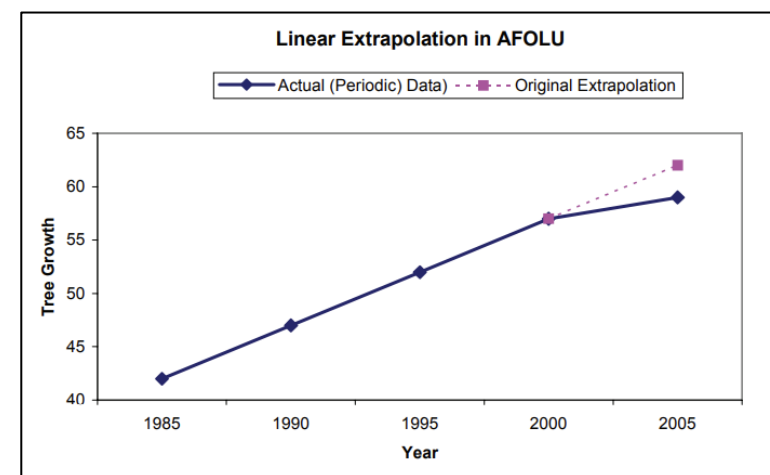
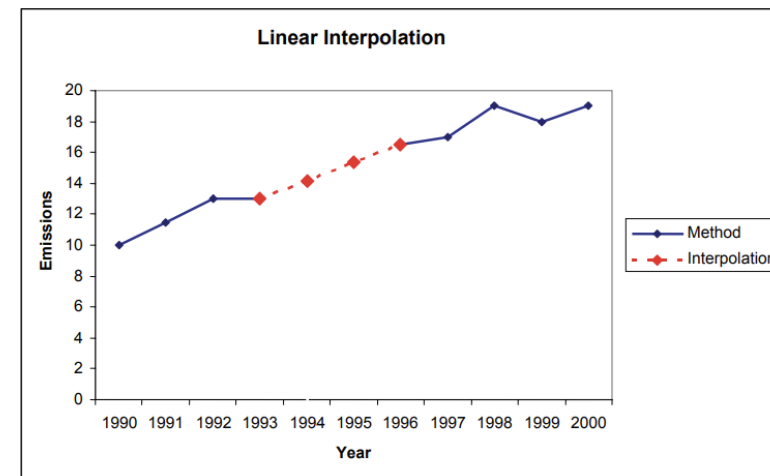
Parties that need **flexibility** [...] have the flexibility to instead identify key categories using a threshold no lower than 85 per cent in place of the 95 per cent threshold defined in the IPCC guidelines [...], allowing a focus on improving fewer categories and prioritizing resources

3. Time-series consistency and recalculations

26. To ensure **time-series consistency**, each Party **should** use the same methods and a consistent approach to underlying AD and EF for each reported year.

27. Each Party **should** use **surrogate data, extrapolation, interpolation and other methods consistent with splicing techniques** contained in the IPCC guidelines [...] to estimate missing emission values resulting from lack of AD, EF or other parameters in order to ensure a consistent time series.

28. Each Party **shall** perform **recalculations** [...], ensuring that changes in emission trends are not introduced as a result of changes in methods or assumptions across the time series.



4. Uncertainty assessment

29. Each Party **shall** quantitatively estimate and qualitatively discuss the uncertainty of the emission and removal estimates for all source and sink categories, including inventory totals, for at least the starting year and the latest reporting year of the inventory time series [...]. Each Party **shall** also estimate the trend uncertainty of emission and removal estimates for all source and sink categories, including totals, between the starting year and the latest reporting year of the inventory time series [...], using at least approach 1, as provided in the IPCC guidelines [...];

Table 1.5. The ten sources with the largest uncertainty contributions in the Swedish inventory for 2022, excluding LULUCF (Contribution to level approach 2).

IPCC Source Category	GHG	Year 2022 emissions or removals (kt CO ₂ -eq.)	Combined uncertainty (%)	Relative contribution to variance in year 2022 (%)
3 D a 1 Inorganic N fertilizers	N2O	769.78	80.2	18.63
3 D a 6 Cultivation of organic soils (i.e. histosols)	N2O	604.36	85.1	12.96
1 A 1 a Public Electricity and Heat Production:Other Fuels	CO2	3 101.18	15.7	11.54
3 A 1 Non-dairy cattle	CH4	1 619.62	25.5	8.34
3 D b 1 Atmospheric deposition	N2O	83.52	400.5	5.48
2 F 1 Refrigeration and air conditioning	HFCs	785.82	38.4	4.46
3 D a 4 Crop residues applied to soils	N2O	360.22	82.5	4.32
3 B Indirect N2O emissions	N2O	72.50	400.5	4.13
5 A 1 Managed waste disposal sites	CH4	509.09	55.9	3.96
3 A 1 Dairy cattle	CH4	1 240.85	20.6	3.20
Total				77%

Parties that need **flexibility** [...] have the flexibility to instead provide, at a minimum, a qualitative discussion of uncertainty for key categories, using the IPCC guidelines [...], where quantitative input data are unavailable to quantitatively estimate uncertainties, and are **encouraged** to provide a quantitative estimate of uncertainty for all source and sink categories of the GHG inventory.

5. Assessment of completeness (1/2)

30. Each Party **should** indicate the sources and sinks (categories, pools and gases) that are not considered in the NGI report but for which estimation methods are included in the IPCC guidelines [...] and explain the reasons for such exclusion.

31. Each Party **shall** use notation keys where numerical data are not available when completing CRT, indicating the reasons why emissions from sources and removals by sinks and associated data for specific sectors, categories and subcategories or gases are not reported.

Notation Key	Definition	Explanation
NE	Not estimated	Emissions and/or removals occur but have not been estimated or reported, but for which a corresponding activity may occur within a Party.
IE	Included elsewhere	Emissions and/or removals for this activity or category are estimated and included in the NGI but not presented separately for this category. The category where these emissions and removals are included should be indicated.
C	Confidential information	Emissions and/or removals are aggregated and included elsewhere in the NGI because reporting at a disaggregated level could lead to the disclosure of confidential information
NA	Not applicable	The activity or category exists but relevant emissions and removals are considered never to occur. Such cells are normally shaded in the CRT.
NO	Not occurring	An activity or process does not exist within a country.

5. Assessment of completeness (2/2)

32. Each Party **may** use the notation key “NE” when the estimates would be **insignificant** in terms of level according to the following considerations:

The likely level of emissions is below 0.05 % of the national total GHG emissions, excluding LULUCF, or 500 kt CO₂ eq, whichever is lower. The total national aggregate of estimated emissions for all gases from categories considered insignificant **shall** remain below 0.1 % of the national total GHG emissions, excluding LULUCF. Parties **should** use approximated AD and default IPCC EF to derive a likely level of emissions for the respective category.

Parties have the **flexibility** to instead consider emissions insignificant if the likely level of emissions is below 0.1 % of the national total GHG emissions, excluding LULUCF, or 1,000 kt CO₂ eq, whichever is lower. The total national aggregate of estimated emissions for all gases from categories considered insignificant, in this case, **shall** remain below 0.2 % of the national total GHG emissions, excluding LULUCF.

33. Once emissions or removals have been estimated for a category and if they continue to occur, each Party **shall** report them in subsequent submissions.

6. Quality assurance/quality control

34. Each Party **shall** elaborate an inventory QA/QC plan [...], including information on the inventory agency responsible for implementing QA/QC.

Parties that need **flexibility** [...] are instead **encouraged** to elaborate an inventory QA/QC plan [...], including information on the inventory agency responsible for implementing QA/QC.

35. Each Party **shall** implement and provide information on general inventory QC procedures in accordance with its QA/QC plan and the IPCC guidelines [...].

Parties that need **flexibility** [...] are instead **encouraged** to implement and provide information on general inventory QC procedures in accordance with its QA/QC plan [...].

In addition, Parties **should** apply category-specific QC procedures [...] for key categories and for those individual categories in which significant methodological changes and/or data revisions have occurred. In addition, Parties **should** implement QA procedures by conducting a basic expert peer review of their inventories [...].

36. Each Party **should** compare the national estimates of CO₂ emissions from fuel combustion with those obtained using the **reference approach** [...] and report the results of this comparison in its NIR.

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D. Metrics

37. Each Party **shall** use the 100-year time-horizon GWP values from the IPCC AR5 [...], to report aggregate emissions and removals of GHGs, expressed in CO₂ eq. Each Party **may** in addition also use other metrics (e.g. global temperature potential) to report supplemental information [...]. In such cases, the Party **shall** provide in the NID information on the values of the metrics used and the IPCC AR they were sourced from.

IPCC Global Warming Potential (GWP) values relative to CO₂

Common chemical name or industrial designation	Chemical formula	GWP values for 100-year time horizon		
		Fourth Assessment Report (AR4)	Fifth Assessment Report (AR5)	Sixth Assessment Report (AR6)
Major Greenhouse Gases				
Carbon dioxide	CO ₂	1	1	1
Methane – non-fossil	CH ₄	25	28	27.0
Methane – fossil	CH ₄	N/A	30	29.8
Nitrous oxide	N ₂ O	298	265	273
Nitrogen trifluoride	NF ₃	17,200	16,100	17,400
Sulfur hexafluoride	SF ₆	22,800	23,500	24,300

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E. Reporting guidance

38. [...] Each Party shall provide a NIR of anthropogenic emissions by sources and removals by sinks of GHGs. The NIR consists of a national inventory document and the common reporting tables [...].

IPCC/PA/CA/2021/10/Add.2

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

[English only]

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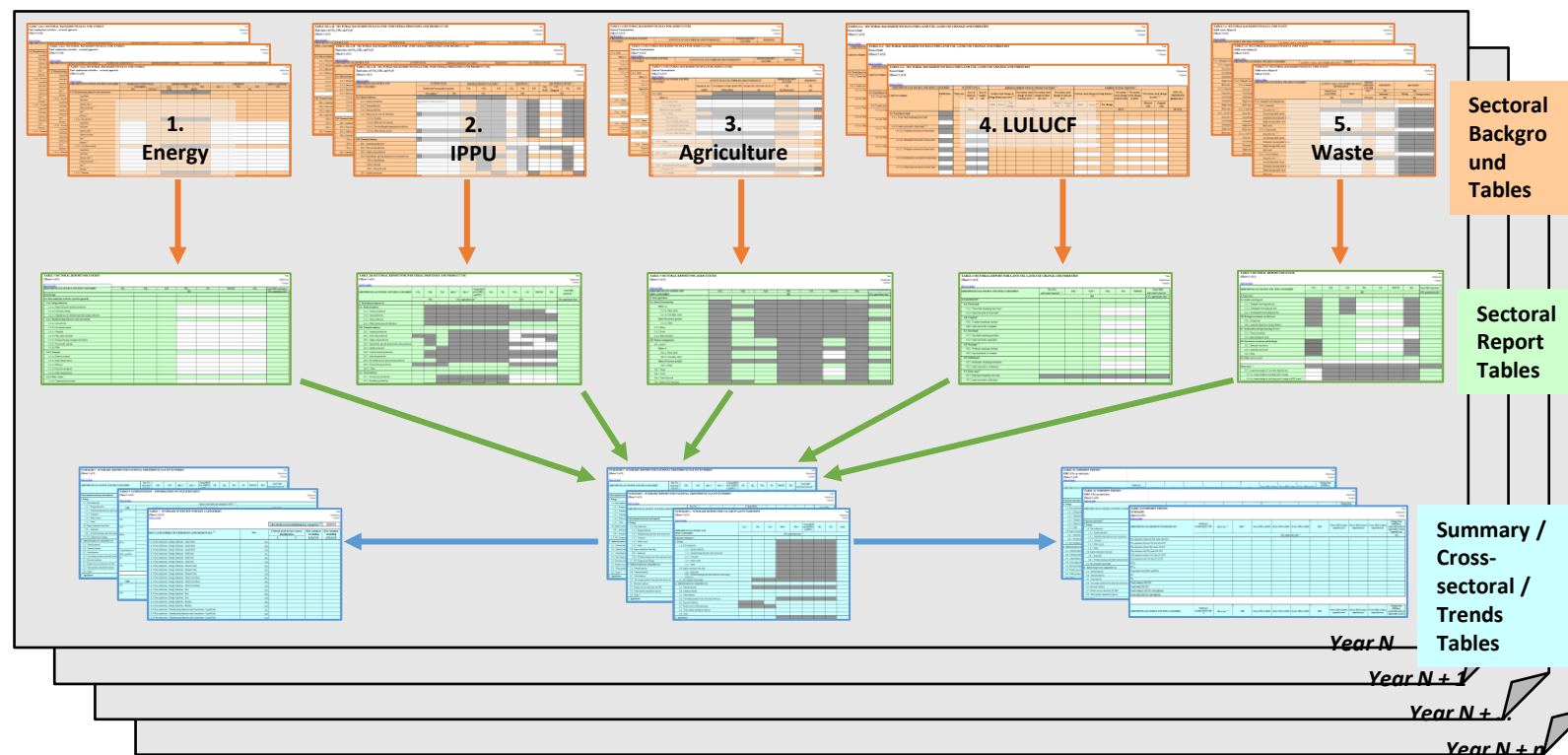
1.3. Brief general description of methodologies (including tiers used) and data sources used

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 (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)

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¹ Use of the outline by Parties is as per para. 2 of decision 5/CA.MA.3.



1. Information on methods and cross-cutting elements (1/2)

Each Party shall:

39. **Report methods used**, including the rationale for the choice of methods [...], and the descriptions, assumptions, references and sources of information used for the EF and AD used [...].

40. Provide information on the category and gas, and the methodologies, EF and AD used at the **most disaggregated level** [...] including related data references for reported emission and removal estimates for any country-specific category and gas [...].

41. **Describe the key categories**, including information on the approach used for their identification, and information on the level of disaggregation used [...].

42. Report the **individual and cumulative percentage contributions from key categories**, for both level and trend [...].

1. Information on methods and cross-cutting elements (2/2)

43. **Report recalculations** for the starting year [...] and all subsequent years of the inventory time series, together with explanatory information and justifications for recalculations with an indication of relevant changes and their impact on the emission trends [...].

44. **Report the results of the uncertainty analysis** as well as methods used, underlying assumptions, as applicable, and trends, at least for the starting year and the latest reporting year of the inventory time series [...].

45. **Report information on the reasons for lack of completeness**, including information on any methodological or data gaps [...].

46. **Report the QA/QC plan and information on QA/QC procedures** already implemented or to be implemented in the future [...].

2. Sectors and gases (1/4)

47. Each Party **shall** report estimates of emissions and removals for all categories, gases and carbon pools considered in the NGI throughout the reported period on a gas by-gas basis in units of mass at the most disaggregated level [...], using the CRT, 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.

48. Each Party **shall** report **seven gases**: CO₂, CH₄, N₂O, HFCs, PFCs, SF₆ and NF₃;

Parties that need **flexibility** [...] have the flexibility to instead report at least three gases (CO₂, CH₄ and N₂O) as well as any of the additional four gases (HFCs, PFCs, SF₆ and NF₃) that are included in the Party's NDC [...], are covered by an activity under Article 6, or have been previously reported.

2. Sectors and gases (2/4)

49. Each Party reporting HFCs, PFCs, SF₆ and NF₃ shall report actual emissions of the gases, providing disaggregated data by chemical and category in units of mass and in CO₂ eq.

50. Each Party shall report the following sectors: energy, IPPU, agriculture, LULUCF and waste [...].

51. Each Party should provide information on the following precursor gases: CO, NO_x, NMVOC and SO_x.

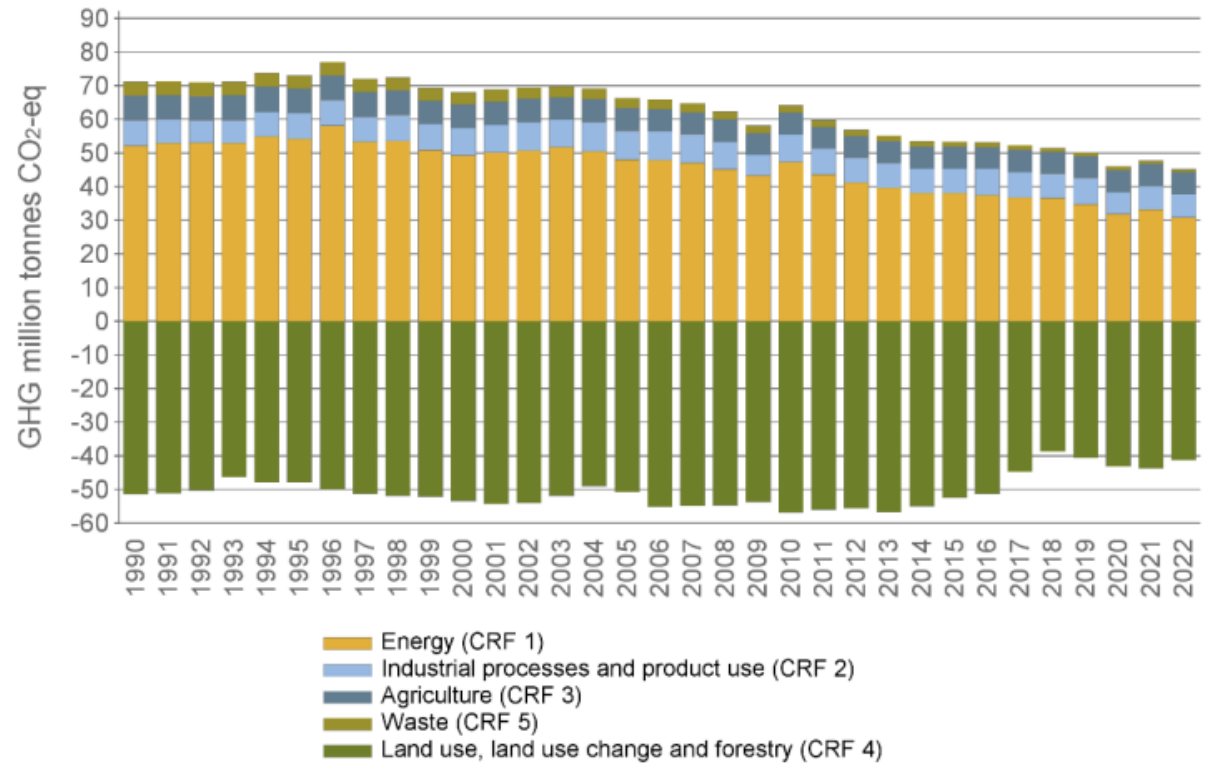


Figure 2.1. Total emissions and removals of greenhouse gases calculated as CO₂-eq. from Land use, land use change and forestry (LULUCF, CRT 4) and the other sectors (CRT 1, 2, 3 and 5), 1990-2022.

2. Sectors and gases (3/4)

52. Each Party **may** report **indirect CO₂ from the atmospheric oxidation of CH₄, CO and NMVOCs**. For Parties that decide to report indirect CO₂, the national totals **shall** be presented with and without indirect CO₂. Each Party **should** report **indirect N₂O emissions from sources other than those in the agriculture and LULUCF sectors** as a memo item. Those estimates of indirect N₂O **shall** not be included in national totals. Parties **may** provide information on other substances that have an impact on climate.

53. Each Party **should** report **international aviation and marine bunker fuel emissions** as two separate entries and **should** not include such emissions in national totals but report them distinctly, if disaggregated data are available, making every effort to both apply and report according to the method contained in the IPCC guidelines [...] for separating domestic and international emissions.

2. Sectors and gases (4/4)

54. Each Party **should** clearly indicate how **feedstocks and non-energy use of fuels** have been accounted for in the inventory, under the energy or IPPU sector [...].

55. In the case of a Party addressing the **emissions and subsequent removals from natural disturbances on managed lands** in its NGI, that Party **shall** report information on the approach taken, and how it is consistent with IPCC guidance, as appropriate, and **shall** indicate if the estimates are indicated in national totals.

56. In the case of a Party using an approach to reporting emissions and removals from **harvested wood products** (HWP) in accordance with IPCC guidance other than the **production approach**, that Party **shall** also provide supplementary information on emissions and removals from HWP estimated using the production approach.

3. Time series

57. Each Party shall report a consistent annual time series starting from 1990;

Parties that need flexibility [...] have the flexibility to instead report data covering, at a minimum, the reference year/period for its NDC [...] and, in addition, a consistent annual time series from at least 2020 onwards.

58. For each Party, the latest reporting year shall be no more than two years prior to the submission of its NIR;

Parties that need flexibility [...] have the flexibility to instead have their latest reporting year as three years prior to the submission of their NIR.

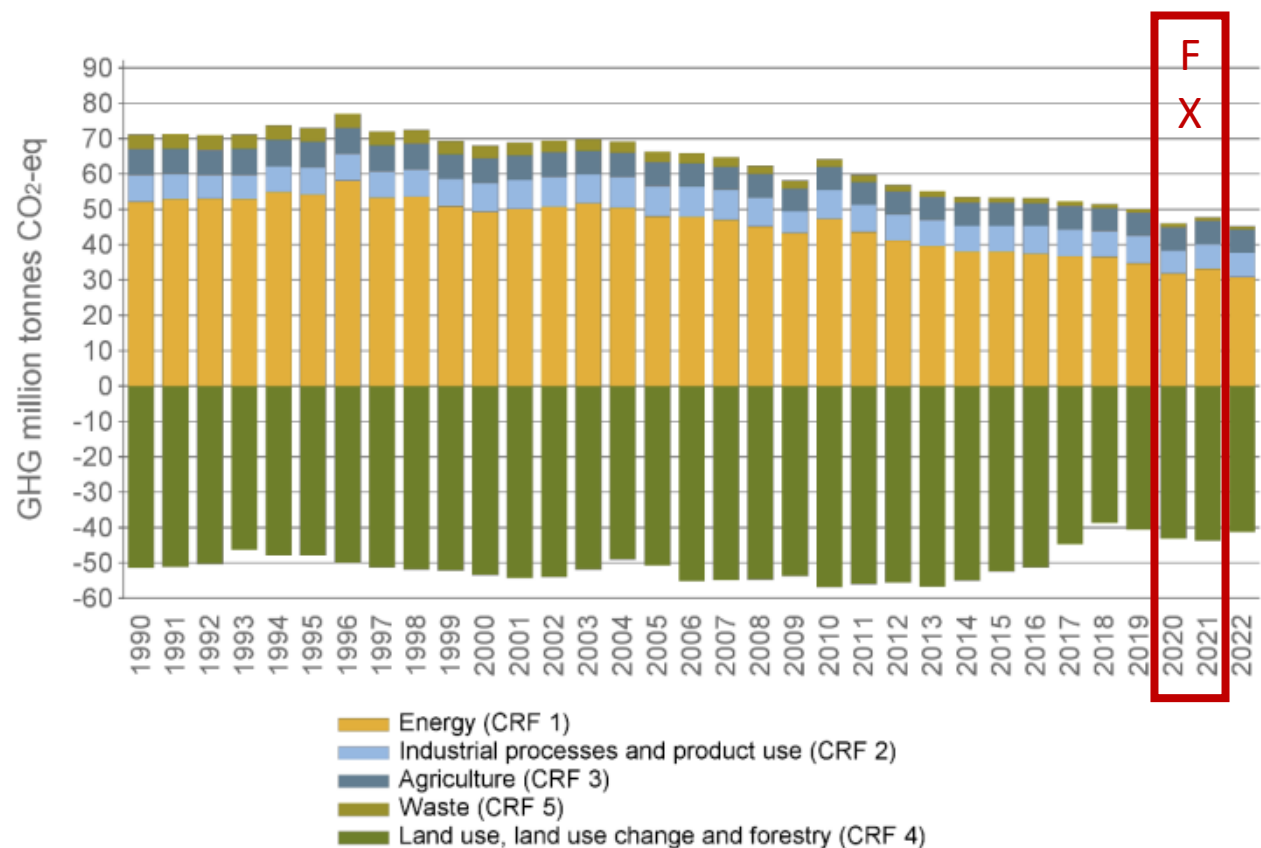


Figure 2.1. Total emissions and removals of greenhouse gases calculated as CO₂-eq. from Land use, land use change and forestry (LULUCF, CRT 4) and the other sectors (CRT 1, 2, 3 and 5), 1990-2022.

Thank you for your attention

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