

Decision 17/CP.8

Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention

The Conference of the Parties,

Recalling, in particular, Article 4, paragraphs 1, 3 and 7, Article 10, paragraph 2(a) and Article 12, paragraphs 1, 5 and 7, of the Convention,

Recalling also its decisions on communications from Parties not included in Annex I to the Convention (non-Annex I Parties) and, in particular, its decisions 10/CP.2, 2/CP.4, 12/CP.4, 8/CP.5, 31/CP.7 and 32/CP.7,

Recalling further that, by its decision 8/CP.5, it had initiated a process of reviewing the guidelines for the preparation of national communications from non-Annex I Parties, with the aim of improving them,

Having in mind that, at its seventh session, it had decided¹ to continue the process of reviewing the guidelines for the preparation of national communications from non-Annex I Parties, with a view to adopting them at its eighth session,

Acknowledging that the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention has made important contributions to the revision of the guidelines for the preparation of national communications from non-Annex I Parties,

Recognizing the important role of the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention, in facilitating technical advice and support for the preparation of second and, where appropriate, third national communications from non-Annex I Parties, pursuant to decision xx/CP.8,

1. *Decides:*

(a) That Parties not included in Annex I to the Convention (non-Annex I Parties) should use the guidelines contained in the annex to this decision for the preparation of second and, where appropriate, third national communications and, where appropriate, initial national communications, except where Parties have initiated the process of preparing second national communications and received funding under the expedited procedures or on an agreed full cost basis prior to the approval of the guidelines annexed to this decision;

(b) That, in using these guidelines, non-Annex I Parties should take into account their development priorities, objectives and national circumstances;

(c) That these guidelines should be used to provide guidance to an operating entity of the financial mechanism for funding the preparation of national communications from non-Annex I Parties;

(d) That the guidelines contained in the annex to this decision, together with the guidance to an operating entity of the financial mechanism provided in decision xxx/CP.8, should be used for the preparation of second and, where appropriate, third national communications and, where appropriate, initial national communications;

¹ Decision 32/CP.7.

(e) That Parties that have submitted their second national communication and started their third national communication before the thirteenth session of the Conference of the Parties, may do so using the guidelines annexed to this decision;

(f) That the frequency of submission of second and, where appropriate, third national communications by non-Annex I Parties shall be determined by the Conference of the Parties, at its ninth session, taking into account the principles of differentiated timetable set by the Convention;

2. *Invites* non-Annex I Parties that may wish to do so, to use elements from the guidelines for the preparation of national communications from Parties included in Annex I to the Convention, when preparing their national communications;

3. *Requests* the secretariat to facilitate assistance to non-Annex I Parties in the preparation of their national communications, in accordance with Article 8, paragraph 2 (c), of the Convention, and to prepare reports thereon for consideration by the Subsidiary Body for Implementation.

ANNEX

Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention

I. INTRODUCTION

A. Objectives

1. The principal objectives of the guidelines for the preparation of national communications from Parties not included in Annex I to the Convention (non-Annex I Parties) shall be:
 - (a) To assist non-Annex I Parties in meeting their reporting requirements under the Convention;
 - (b) To encourage the presentation of information in a consistent, transparent and comparable, as well as flexible, manner, taking into account specific national circumstances;
 - (c) To facilitate the presentation of information on support required for the preparation and improvement of national communications from non-Annex I Parties;
 - (d) To serve as policy guidance to the operating entity of the financial mechanism for the timely provision of financial support needed by developing country Parties in order to meet the agreed full costs of complying with their obligations under Article 12, paragraph 1, as referred to in decisions 11/CP.2, 2/CP.4, 2/CP.7 and 6/CP.7;
 - (e) To ensure that the Conference of the Parties (COP) has sufficient information to carry out its responsibility for assessing the implementation of the Convention by Parties.

B. Scope

2. As stated in Article 12, paragraph 1, of the Convention, the national communication shall include the following information:
 - (a) A national inventory of anthropogenic emissions by sources and removal by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent its capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of the Parties;
 - (b) A general description of steps taken or envisaged by the non-Annex I Party to implement the Convention;
 - (c) Any other information that the non-Annex I Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication, including, if feasible, material relevant for calculations of global emission trends.

II. NATIONAL CIRCUMSTANCES

3. Non-Annex I Parties should provide a description of their national and regional development priorities, objectives and circumstances, on the basis of which they will address climate change and its adverse impacts. This description may include information on features of their geography, climate and economy which may affect their ability to deal with mitigating and adapting to climate change, as well as information regarding their specific needs and concerns arising from the adverse effects of climate change and/or the impact of the implementation of response measures, as contained in Article 4, paragraph 8, and, as appropriate, in Article 4, paragraphs 9 and 10, of the Convention.
4. Non-Annex I Parties are encouraged to provide a summary of relevant information regarding their national circumstances, as appropriate, in tabular form.

5. Non-Annex I Parties may provide a description of existing institutional arrangements relevant to the preparation of their national communications on a continuous basis.

III. NATIONAL GREENHOUSE GAS INVENTORY

6. Each non-Annex I Party shall, in accordance with Article 4, paragraph 1 (a), and Article 12, paragraph 1(a) of the Convention, communicate to the Conference of the Parties a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases (GHGs) not controlled by the Montreal Protocol, to the extent its capacities permit, following the provisions in these guidelines.

7. Non-Annex I Parties shall estimate national GHG inventories for the year 1994 for the initial national communication or alternatively may provide data for the year 1990. For the second national communication, non-Annex I Parties shall estimate national GHG inventories for the year 2000. The least developed country Parties could estimate their national GHG inventories for years at their discretion.

A. Methodologies

8. Non-Annex I Parties should use the Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories, hereinafter referred to as the IPCC Guidelines, for estimating and reporting their national GHG inventories.

9. In accordance with the IPCC Guidelines, Parties may use different methods (tiers) included in the Guidelines, giving priority to those methods which are believed to produce the most accurate estimates, depending on national circumstances and the availability of data. As encouraged by the IPCC Guidelines, Parties can also use national methodologies where they consider these to be better able to reflect their national situation, provided that these methodologies are consistent, transparent and well documented.

10. The IPCC Guidelines offer a default methodology which includes default emission factors and in some cases default activity data. As these default factors, data and assumptions may not always be appropriate for specific national circumstances, non-Annex I Parties are encouraged to use their country-specific and regional emission factors and activity data for key sources or, where these do not exist, to propose plans to develop them in a scientifically sound and consistent manner, provided that they are more accurate than the default data and documented transparently. Non-Annex I Parties are encouraged to formulate cost-effective national or regional programmes aiming at the development or improvement of country-specific or regional emissions factors and activity data.

11. Non-Annex I Parties are encouraged to apply the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (hereinafter referred to as the IPCC good practice guidance), taking into account the need to improve transparency, consistency, comparability, completeness and accuracy in inventories.

12. Non-Annex I Parties are also encouraged, to the extent possible, to undertake any key source analysis as indicated in the IPCC good practice guidance to assist in developing inventories that better reflect their national circumstances.

B. Reporting

13. Non-Annex I Parties are encouraged to describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved.

14. Each non-Annex I Party shall, as appropriate and to the extent possible, provide in its national inventory, on a gas-by-gas basis and in units of mass, estimates of anthropogenic emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) by sources and removals by sinks.

15. Non-Annex I Parties are encouraged, as appropriate, to provide information on anthropogenic emissions by sources of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).
16. Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emission by sources of other greenhouse gases such as carbon monoxide (CO), nitrogen oxides (NO_x) and non-methane volatile organic compounds (NMVOCs).
17. Other gases not controlled by the Montreal Protocol, such as sulphur oxides (SO_x), included in the IPCC Guidelines, may be included at the discretion of the Parties.
18. Non-Annex I Parties are encouraged, to the extent possible, and if disaggregated data are available, to estimate and report CO₂ fuel combustion emissions using both the sectoral and the reference approaches, and to explain any large differences between the two approaches.
19. Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, to report emissions from international aviation and marine bunker fuels separately in their inventories. Emission estimates from these sources should not be included in the national totals.
20. Non-Annex I Parties wishing to report on aggregated GHG emissions and removals expressed in CO₂ equivalents should use the global warming potentials (GWP) provided by the IPCC in its Second Assessment Report ("1995 IPCC GWP Values") based on the effects of GHGs over a 100-year time horizon.
21. Non-Annex I Parties are encouraged to provide information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol, including a brief explanation of the sources of emission factors and activity data. If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks which are not part of the IPCC Guidelines, they should explicitly describe the source and/or sink categories, methodologies, emission factors and activity data used in their estimation of emissions, as appropriate. Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building.
22. Each non-Annex I Party is encouraged to use tables 1 and 2 of these guidelines in reporting its national GHG inventory, taking into account the provisions established in paragraphs 14 to 17 above. In preparing those tables, Parties should strive to present information which is as complete as possible. Where numerical data are not provided, Parties should use the notation keys as indicated.
23. Non-Annex I Parties are encouraged to include in their national communications the inventory sectoral tables and worksheets² of the IPCC, in both electronic and hard copy format.
24. Non-Annex I Parties are encouraged to provide information on the level of uncertainty associated with inventory data and their underlying assumptions, and to describe the methodologies used, if any, for estimating these uncertainties.

IV. GENERAL DESCRIPTION OF STEPS TAKEN OR ENVISAGED TO IMPLEMENT THE CONVENTION

25. Each non-Annex I Party shall, in accordance with Article 12, paragraph 1(b), communicate to the Conference of the Parties a general description of steps taken or envisaged by the Party to implement the Convention, taking into account its common but differentiated responsibilities and its specific national and regional development priorities, objectives and circumstances.

¹ The IPCC software (see <http://www.ipcc-nggip.iges.or.jp/public/gl/software.htm>) provides for automated reporting in the worksheets and tables.

26. Non-Annex I Parties may provide information on programmes containing measures to mitigate climate change by addressing anthropogenic emission by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change, following the provisions in these guidelines.

27. Taking into account Article 4, paragraph 7, and, as appropriate, Article 4, paragraphs 3 and 5, of the Convention, the extent to which developing country Parties will effectively implement their commitment to communicate this information will depend on the effective implementation by developed country Parties of their commitments under the Convention relating to financial resources and transfer of technology.

B. Programmes containing measures to facilitate adequate adaptation to climate change

28. Each Party shall, in accordance with Article 12, paragraph 1 (b) and (c), of the Convention, provide to the COP information on the general descriptions of steps taken or envisaged towards formulating, implementing, publishing and regularly updating national and, where appropriate, regional programmes containing measures to facilitate adequate adaptation to climate change, and any other information they consider to be relevant to the achievement of the objective of the Convention and suitable for inclusion in their communications.

29. In doing so, non-Annex I Parties should provide information on their vulnerability to the adverse effects of climate change, and on adaptation measures being taken to meet their specific needs and concerns arising from these adverse effects.

1. Methodological approaches

30. Non-Annex I Parties may use appropriate methodologies and guidelines³ they consider better able to reflect their national situation for assessing their vulnerability and adaptation to climate change, provided that these methodologies and guidelines are consistent, transparent and well documented.

31. Non-Annex I Parties are encouraged to use, for the evaluation of adaptation strategies and measures,⁴ appropriate methodologies they consider better able to reflect their national situation, provided that these methodologies are consistent, transparent and well documented.

2. Reporting

32. Non-Annex I Parties are encouraged to provide information on the scope of their vulnerability and adaptation assessment, including identification of vulnerable areas that are most critical.

33. Non-Annex I Parties are encouraged to include a description of approaches, methodologies and tools used, including scenarios for the assessment of impacts of, and vulnerability and adaptation to, climate change, as well as any uncertainties inherent in these methodologies.

34. Non-Annex I Parties are encouraged to provide information on their vulnerability to the impacts of, and their adaptation to, climate change in key vulnerable areas. Information should include key findings, and direct and indirect effects arising from climate change, allowing for an integrated analysis of the country's vulnerability to climate change.

³ Such as the *IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations* (Carter, T.R., M.L. Parry, H. Harasawa, S. Nishioka, 1994), the *UNEP Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies* (Feenstra, J.F., I. Burton, J.B. Smith, R.S.J. Tol, 1998), and the *International Handbook on Vulnerability and Adaptation Assessments* (Benioff, R., S. Guill, J. Lee, 1996).

⁴ Such as those contained in the *Compendium of Decision Tools to Evaluate Strategies for Adaptation to Climate Change* which is available from the UNFCCC web site, www.unfccc.int/issues/meth_tools.html

35. Non-Annex I Parties are encouraged to provide information on and, to the extent possible, an evaluation of, strategies and measures for adapting to climate change, in key areas, including those which are of the highest priority.

36. Where relevant, Parties may report on the use of policy frameworks, such as national adaptation programmes,⁵ plans and policies for developing and implementing adaptation strategies and measures.

C. Programmes containing measures to mitigate climate change

37. Each Party shall, in accordance with Article 12, paragraphs 1 (b) and (c), of the Convention, provide to the COP information on the general descriptions of steps taken or envisaged for formulating, implementing, publishing and regularly updating national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol, and any other information they consider to be relevant to the achievement of the objective of the Convention and suitable for inclusion in their communications.

1. Methodological approaches

38. Based on national circumstances, non-Annex I Parties are encouraged to use whatever methods are available and appropriate in order to formulate and prioritize programmes containing measures to mitigate climate change; this should be done within the framework of sustainable development objectives, which should include social, economic and environmental factors.

39. In their assessment of these programmes on various sectors of the economy, non-Annex I Parties may use the appropriate technical resources.⁶

2. Reporting

40. Based on national circumstances, non-Annex I Parties are encouraged to provide, to the extent their capacities allow, information on programmes and measures implemented or planned⁷ which contribute to mitigating climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol, including, as appropriate, relevant information by key sectors on methodologies, scenarios, results, measures and institutional arrangements.

V. OTHER INFORMATION CONSIDERED RELEVANT TO THE ACHIEVEMENT OF THE OBJECTIVE OF THE CONVENTION

41. With a view to facilitating the formulation and implementation of sustainable development programmes, non-Annex I Parties are encouraged, as appropriate, to provide information on any steps they have taken to integrate climate change considerations into relevant social, economic and environmental policies and actions in accordance with Article 4, paragraph 1 (f), of the Convention.

A. Transfer of technologies

42. Pursuant to decision 4/CP.7, its annex, and the implementation of Article 4, paragraph 5, of the Convention, non-Annex I Parties are encouraged, in the light of their social and economic conditions, to provide information on activities relating to the transfer of, and access to, environmentally sound technologies and know-how, the development and enhancement of endogenous capacities, technologies

⁵ For example, national adaptation programmes of action (NAPAs) for least developed countries.

⁶ Such as *Technologies, Policies and Measures for Mitigating Climate Change* (IPCC Technical Paper I); *Greenhouse Gas Mitigation Assessment: A Guidebook by the U.S. Country Studies Program*; *Climate Change 2001: Mitigation* (Contribution of Working Group III to the Third Assessment Report of the IPCC)

⁷ Such as measures being considered by the government for future implementation.

and know-how, and measures relating to enhancing the enabling environment for development and transfer of technologies.

B. Research and systematic observation

43. Non-Annex I Parties are encouraged to provide information on climate change research and systematic observation, including their participation in and contribution to activities and programmes, as appropriate, of national, regional and global research networks and observing systems.⁸

44. Non-Annex I Parties are encouraged to provide information on research relating to programmes containing measures to mitigate climate change; programmes containing measures to facilitate adequate adaptation to climate change; and the development of emission factors and activity data.

C. Education, training and public awareness

45. Non-Annex I Parties are invited to provide information on activities relating to climate change education, training and public awareness.

D. Capacity-building

46. Non-Annex I Parties are encouraged to provide, in accordance with decision 2/CP.7, information on how capacity-building activities, as contained in the framework annexed to that decision, are being implemented at national and, where appropriate, at subregional and/or regional levels. This could include, inter alia, options and priorities for capacity-building, participation in and promotion of South–South cooperation, the involvement of stakeholders in capacity-building, coordination and sustainability of capacity-building activities, and the dissemination and sharing of information on capacity-building activities.

47. Non-Annex I Parties are encouraged to include, as appropriate, information on national, subregional and/or regional capacity-building activities for integrating adaptation to climate change into medium and long-term planning.

E. Information and networking

48. Non-Annex I Parties are encouraged to provide information on their efforts to promote information sharing among and within countries and regions. Information could cover, as appropriate, participation in and contribution to networks, and access to, and use of, information technologies for information exchange.

VI. CONSTRAINTS AND GAPS, AND RELATED FINANCIAL, TECHNICAL AND CAPACITY NEEDS

49. Non-Annex I Parties should, in accordance with national circumstances and development priorities, describe any constraints and gaps, and related financial, technical and capacity needs, as well as proposed and/or implemented activities for overcoming the gaps and constraints, associated with the implementation of activities, measures and programmes envisaged under the Convention, and with the preparation and improvement of national communications on a continuous basis.

50. Non-Annex I Parties should provide information on financial resources and technical support for the preparation of their national communications provided by themselves, as well as those received from the Global Environment Facility (GEF), Annex II Parties or bilateral and multilateral institutions.

⁸ Such as the Global Climate Observing System, Global Terrestrial Observing System and Global Ocean Observing System.

51. Non-Annex I Parties should also provide information on financial resources and technical support provided by themselves and by the GEF, Annex II Parties or bilateral and multilateral institutions, for activities relating to climate change.

52. Non-Annex I Parties are encouraged to provide, to the extent their capacities permit, a list of projects proposed for financing, in accordance with Article 12, paragraph 4, of the Convention, in preparation for arranging the provision of technical and financial support.

53. Non-Annex I Parties may include information on opportunities for the implementation of adaptation measures, including pilot and/or demonstration adaptation projects, being undertaken or proposed. They may also provide information on barriers to the implementation of adaptation measures. They may include, as appropriate, information on how support programmes from Parties included in Annex II to the Convention are meeting their specific needs and concerns relating to vulnerability and adaptation to climate change.

54. With regard to the development and transfer of technology, non-Annex I Parties are encouraged to provide information on country-specific technology needs and assistance received from developed country Parties and the financial mechanism of the Convention and, as appropriate, on how they have utilized this assistance in support of the development and enhancement of endogenous capacities, technologies and know-how.

55. Non-Annex I Parties are encouraged to provide information on other relevant needs and/or areas for capacity-building other than those mentioned in paragraphs 45, 47, 48 and 50.

VII. SUBMISSION

56. The information provided in accordance with these guidelines shall be communicated by each non-Annex I Party to the COP in a single document, with an executive summary outlining the information contained in the full document, in both hard copy and electronic format.

57. Each non-Annex I Party shall submit its national communication in one of the official languages of the United Nations. The executive summary, which is to be of no more than 10 pages, shall be translated into English and made publicly available. Parties are also encouraged to submit, to the extent possible and where relevant, English translations of their communications.

58. Additional or supporting information may be supplied through other documents such as a technical annex.

Table 1. National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol^a and greenhouse gas precursors

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO ₂ emissions (Gg)	CO ₂ removals (Gg)	CH ₄ (Gg)	N ₂ O (Gg)	CO (Gg)	NO _x (Gg)	NMVOCs (Gg)	SO _x (Gg)
Total national emissions and removals	X	X	X	X	X	X	X	X
1. Energy	X	X	X	X	X	X	X	X
A. Fuel combustion (sectoral approach)	X		X	X	X	X	X	X
1. Energy industries	X		X	X	X	X	X	X
2. Manufacturing industries and construction	X		X	X	X	X	X	X
3. Transport	X		X	X	X	X	X	X
4. Other sectors	X		X	X	X	X	X	X
5. Other (please specify)	X		X	X	X	X	X	X
B. Fugitive emissions from fuels	X		X		X	X	X	X
1. Solid fuels			X		X	X	X	X
2. Oil and natural gas			X		X	X	X	X
2. Industrial processes	X	X	X	X	X	X	X	X
A. Mineral products	X				X	X	X	X
B. Chemical industry	X		X	X	X	X	X	X
C. Metal production	X		X	X	X	X	X	X
D. Other production	X				X	X	X	X
E. Production of halocarbons and sulphur hexafluoride								
F. Consumption of halocarbons and sulphur hexafluoride								
G. Other (please specify)	X		X	X	X	X	X	X
3. Solvent and other product use	X			X			X	
4. Agriculture			X	X	X	X	X	X
A. Enteric fermentation			X					
B. Manure management			X	X			X	
C. Rice cultivation			X				X	
D. Agricultural soils			X	X			X	
E. Prescribed burning of savannahs			X	X	X	X	X	
F. Field burning of agricultural residues			X	X	X	X	X	
G. Other (please specify)			X	X	X	X	X	
5. Land-use change and forestry	X ^b	X ^b	X	X	X	X	X	X
A. Changes in forest and other woody biomass stocks	X ^b	X ^b						
B. Forest and grassland conversion	X	X	X	X	X	X		
C. Abandonment of managed lands		X						
D. CO ₂ emissions and removals from soil	X ^b	X ^b						
E. Other (please specify)	X	X	X	X	X	X		
6. Waste			X	X	X	X	X	X
A. Solid waste disposal on land			X		X		X	
B. Waste-water handling			X	X	X	X	X	
C. Waste incineration					X	X	X	X
D. Other (please specify)			X	X	X	X	X	X
7. Other (please specify)	X	X	X	X	X	X	X	X
Memo items								
International bunkers	X		X	X	X	X	X	X
Aviation	X		X	X	X	X	X	X
Marine	X		X	X	X	X	X	X
CO₂ emissions from biomass	X							

Notes: Shaded cells do not require entries.

^a The following standard indicators should be used, as appropriate, for emissions by sources and removals by sinks of GHGs: **NO** (not occurring) for activities or processes that do not occur for a particular gas or source/sink category within a country, **NE** (not estimated) for existing emissions and removals which have not been estimated, **NA** (not applicable) for activities in a given source/sink category which do not result in emissions or removals of a specific gas, **IE** (included elsewhere) for emissions and removals estimated but included elsewhere in the inventory (Parties should indicate where the emissions or removals have been included), **C** (confidential) for emissions and removals which could lead to the disclosure of confidential information.

^b Do not provide an estimate of both CO₂ emissions and CO₂ removals. “Net” emissions (emissions - removals) of CO₂ should be estimated and a single number placed in either the CO₂ emissions or CO₂ removals column, as appropriate. Note that for the purposes of reporting, the signs for removals are always (-) and for emissions (+).

Table 2. National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF₆

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	HFCs ^{a,b} (Gg)			PFCs ^{a,b} (Gg)			SF ₆ ^a (Gg)
	HFC-23	HFC-134	Other (to be added)	CF ₄	C ₂ F ₆	Other (to be added)	
Total national emissions and removals	X	X	X	X	X	X	X
1. Energy							
A. Fuel combustion (sectoral approach)							
1. Energy industries							
2. Manufacturing industries and construction							
3. Transport							
4. Other sectors							
5. Other (please specify)							
B. Fugitive emissions from fuels							
1. Solid fuels							
2. Oil and natural gas							
2. Industrial processes	X	X	X	X	X	X	X
A. Mineral products							
B. Chemical industry							
C. Metal production	X	X	X	X	X	X	X
D. Other production							
E. Production of halocarbons and sulphur hexafluoride	X	X	X	X	X	X	X
F. Consumption of halocarbons and sulphur hexafluoride	X	X	X	X	X	X	X
G. Other (please specify)							
3. Solvent and other product use							
4. Agriculture							
A. Enteric fermentation							
B. Manure management							
C. Rice cultivation							
D. Agricultural soils							
E. Prescribed burning of savannahs							
F. Field burning of agricultural residues							
G. Other (please specify)							
5. Land-use change and forestry							
A. Changes in forest and other woody biomass stocks							
B. Forest and grassland conversion							
C. Abandonment of managed lands							
D. CO ₂ emissions and removals from soil							
E. Other (please specify)							
6. Waste							
A. Solid waste disposal on land							
B. Waste-water handling							
C. Waste incineration							
D. Other (please specify)							
7. Other (please specify)	X	X	X	X	X	X	X
Memo items							
International bunkers							
Aviation							
Marine							
CO₂ emissions from biomass							

^a Parties may wish to express HFC, PFC and SF₆ emissions as either potential or actual. Potential emissions should be estimated using the tier 1 approach of the IPCC Guidelines. Actual emissions should be estimated using the tier 2 approach of the IPCC Guidelines.

^b Parties reporting HFCs and PFCs should provide emission estimates on a gas-by-gas basis, that is, disaggregated estimates by chemical expressed in units of mass (Gg), as indicated in the table (e.g. HFC-23), where information is available. This should be done by inserting a column for each HFC and PFC gas for which emissions do occur in the country. The gases in the column headings are given as examples only. Other gases to be reported in this table include HFC-32, HFC-41, HFC-43-10, HFC-125, HFC-134a, HFC-

152a, HFC-43-10mee, HFC-143a, HFC-227ea, HFC-236fa, HFC-245ca, C₃F₈, C₄F₁₀, c-C₄F₈, C₅F₁₂, C₆F₁₄, and any other GHG with high global warming potential not covered in this list.