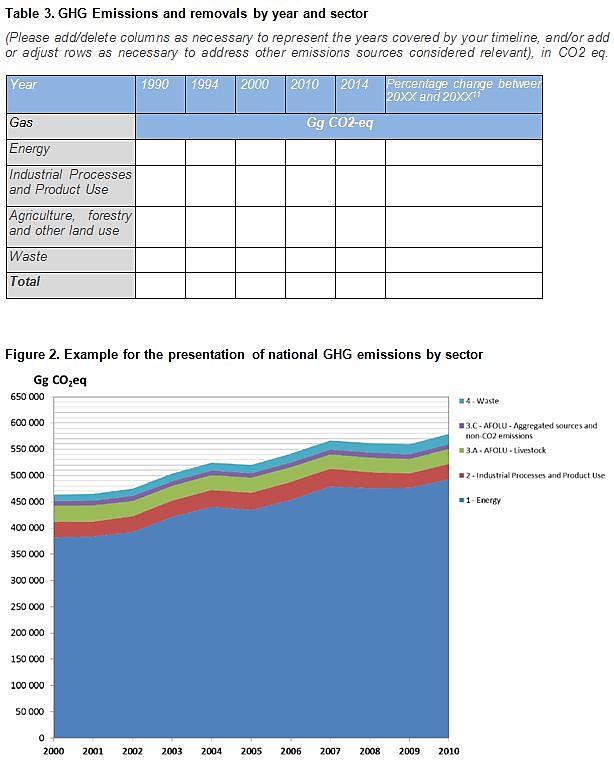
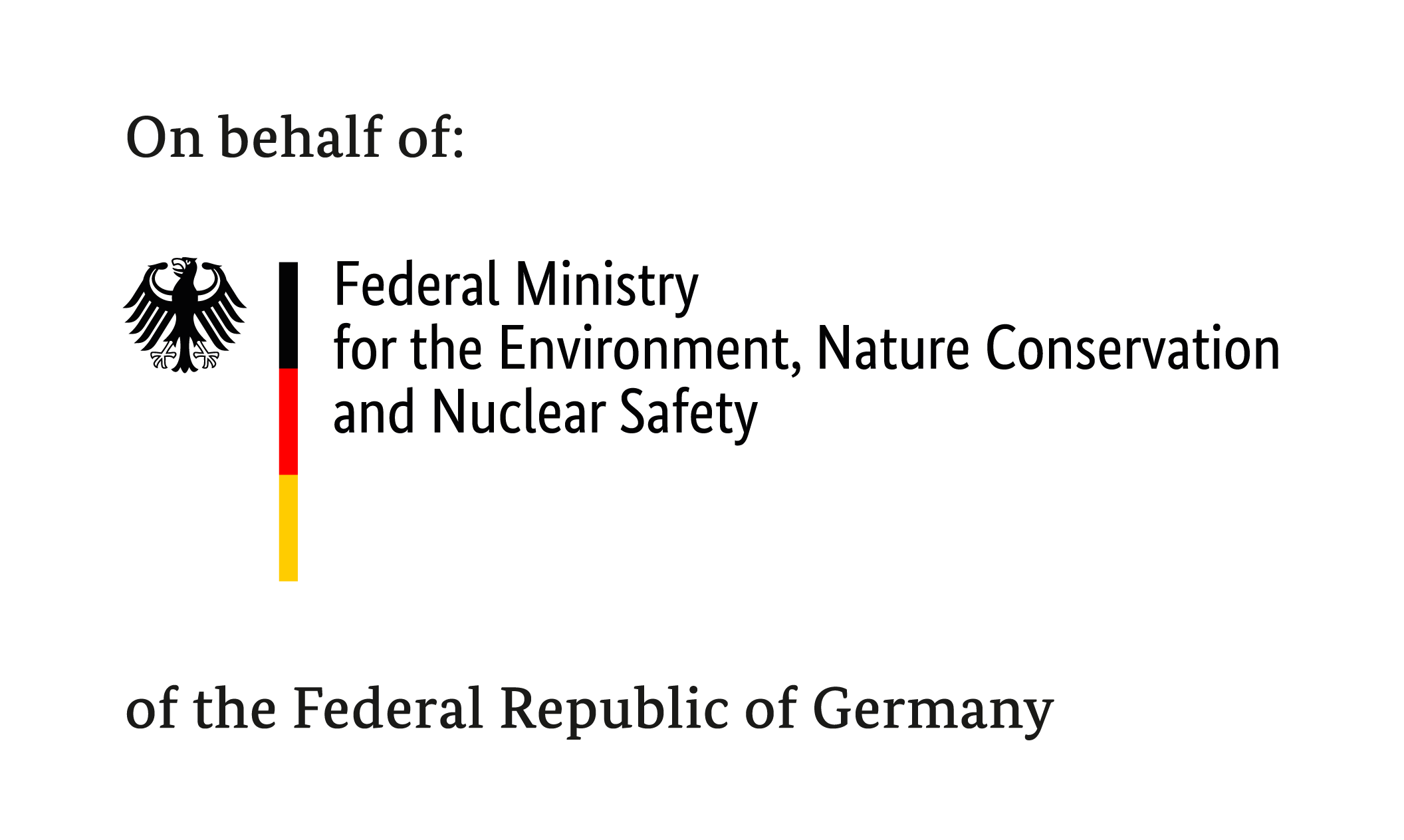
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**Biennial Update Report Template**

F:\2. GTZ 02\001 - Nicolas Hempel\@CDC, Manuals, Logo, Vorlagen  for GIZ\vorlagen cdc 2012\seite office u layoutvorlagen\giz-logo\gizlogo-unternehmen-de-4c.wmf(Compliant with the UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention)

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### Preface

**Aim:** This template is intended to support the preparation of Biennial Update Reports (BURs) by non-Annex I Parties, thereby enabling these Parties to submit ambitious BURs, presenting information in a consistent, transparent, complete and accurate manner, to the extent possible. This document is neither an official UNFCCC publication nor is it endorsed by the UNFCCC. Therefore, the guidance contained herein is not mandatory, but aims to assist countries in their efforts to prepare comprehensive BURs. In particular the guiding questions reflect best practices of ambitious reporting. Parties may adapt this template for their own use in light of the different national circumstances.

This version of the BUR template constitutes an update of the BUR template published in 2014, taking into account experiences gained in its use by non-Annex I Parties and during the implementation of the [Information Matters project](https://mitigationpartnership.net/information-matters-capacity-building-ambitious-reporting-and-facilitation-international-mutual-lear)[[1]](#footnote-2) in the respective partner countries. It further takes into account increased interest by many non-Annex I Parties in using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (hereafter referred to as the 2006 IPCC Guidelines).

**Scope:** The template sets out a proposed report structure and provides guidance on the presentation of information, including on the use of tables. It includes guiding questions, differentiated according to minimum requirements and best practice, which assist in the drafting and structuring of each chapter. Certain elements of guidance are repeated at the beginning of each chapter or within each subchapter in recognition of the fact that individual chapters or subchapters might be compiled by different teams. Each chapter contains cross-references to the relevant provisions on BURs according to the respective COP decision (2/CP.17) and sections of the “*UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention”*(Annex III of UNFCCC decision 2/CP.17, hereinafter referred to as BUR reporting guidelines)[[2]](#footnote-3). The detailed requirements of these guidelines are presented in an appendix to this document (Additional Explanatory Information for Users – UNFCCC Requirements), indicating also where in this template each requirement is addressed, such as:

* “*that non-Annex I Parties shall submit a biennial update report every two years, either as a summary of parts of their national communication in the year in which the national communication is submitted or as a stand-alone report [:::]”3*  and
* “*that the first biennial update report submitted by non-Annex I Parties shall cover, at a minimum, the inventory for the calendar year no more than four years prior to the date of the submission, or more recent years if information is available [:::]”[[3]](#footnote-4)*.

As regards the tables for reporting the national GHG inventory, this template is based on the 2006 IPCC Guidelines, and includes AFOLU[[4]](#footnote-5), taking into account the fact that many non-Annex I Parties are undertaking efforts to start using those Guidelines. However, in line with the current reporting provisions of the BUR reporting guidelines with regard to the GHG inventory and taking into account the requirements for the provisions of tables set out in those guidelines, Parties using this template may adapt the tables for reporting the inventory according to the version of IPCC Guidelines that was used and in light of the different national circumstances, as appropriate.

This template encourages ambitious reporting, given the important role of reporting in showing to the international community in a clear and transparent manner efforts and actions taken to address climate change, and in understanding current levels of greenhouse gas (GHG) emissions. At the same time, high quality reporting will also contribute to the aims of the International Consultation and Analysis (ICA) process, such as to increase the transparency of mitigation actions and their effects. In order to encourage ambitious reporting, the guiding questions in this template in some cases go beyond the minimum requirements of the UNFCCC BUR reporting guidelines (here: “best practice”). Where this is the case, it is understood that provision of such additional information is voluntary, but is likely to be useful not only to the readers of the BUR, including the team of technical experts conducting the technical analysis under the ICA process, but also for those compiling it. This includes, for example, an executive summary to the BUR, which is not required by the guidelines, but is suggested under this template as it will support readers of the BUR to identify its key contents. To help reporting Parties to focus on essential information, each chapter identifies the minimum information required as well as additional information that would be useful to enhance reporting. In addition, guidance on best practice for comprehensive reporting is given. Non-Annex I Parties are also encouraged to identify gaps of data or other information and to suggest future improvements for reporting to overcome these challenges, including specification of support for capacity building needed to that end.

**How to use this template:** We suggest that those using this template for drafting their BUR provide self-explanatory text addressing the guiding questions and fields in the tables and then delete the guidance text from the final document to be submitted (all guidance text is in *grey italics*). Where a National Communication has been published within the last two years, we suggest simply providing an update on the information included in the last National Communication.

**For further reading:** Further orientation on drafting a BUR might be derived from the following sources:

* [UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention (FCCC/CP/2011/9/Add.1; Decision 2/CP.17, Annex III)](http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf)
* [CGE Training Materials for the Preparation of Biennial Update Reports from non-Annex I Parties](http://unfccc.int/national_reports/non-annex_i_natcom/training_material/methodological_documents/items/7915.php)
* [OECD (2011): Frequent and Flexible: Options for Reporting Guidelines for Biennial Update Reports](http://www.oecd-ilibrary.org/environment/frequent-and-flexible-options-for-reporting-guidelines-for-biennial-update-reports_5k45165j1kmq-en)
* [UNFCCC Toolkit for non-Annex I Parties on establishing and maintaining institutional arrangements for preparing national communications and biennial update reports](http://unfccc.int/files/national_reports/non-annex_i_natcom/training_material/methodological_documents/application/pdf/unfccc_mda-toolkit_131108_ly.pdf)
* [UNFCCC (2014): Handbook on Measurement, Reporting and Verification for Developing Country Parties](https://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/non-annex_i_mrv_handbook.pdf)

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# Acronyms and Abbreviations

***Drafting Guidance:*** *This list of abbreviation shall not be considered an exhaustive list for a BUR, but an illustration of the potential layout. Please add further acronyms to the table as needed.*

|  |  |
| --- | --- |
| AFOLU | Agriculture, Forestry and Other Land Use (2006 IPCC Guidelines) |
| Annex I | Parties included in Annex I to the United Nations Framework Convention on Climate Change |
| BUR | Biennial Update Report |
| CPEIR | Climate public expenditure and institutional review |
| GHG | Greenhouse Gas |
| MRV | Measurement, Reporting and Verification |
| NAMA | Nationally Appropriate Mitigation Action |
| Non-Annex I | Parties not included in Annex I to the United Nations Framework Convention on Climate Change |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USD | United States Dollar |

# Executive Summary

***Aim:*** *The aim of this section is to provide a concise, high level summary of each of the chapters of the BUR.*

***Drafting Guidance:*** *To facilitate preparation of the Executive Summary and facilitate comparability, a simple table covering the main chapters of the BUR is provided below with examples. Additionally, you may choose to provide chapter summaries in table 1.*

Table 1. Executive summary – Summary table[[5]](#footnote-6)

|  |  |
| --- | --- |
| 1. **National Circumstances** | |
| **Name of Party** | *e.g. Ruritania* |
| **Year** | *e.g. 2014* |
| **Most recent national report to UNFCCC and year of submission** | *e.g. 2nd National Communication published in 2011* |
| **Description of economy-wide and/or sectoral mitigation pledges, if any** | *e.g. Reduction of X% by 2020 compared to the business as usual scenario* |
| **Description of long-term mitigation goals and the timeline they relate to, if any** | *e.g. Carbon neutral economy by 2050* |
| **Sectors (or sub-sectors) covered by pledge, if any** | *e.g. “All sectors of the economy”, “Energy”, “Waste and IPPU”, etc.* |
| *Please provide a summary of the information contained in chapter 1.* | |

|  |
| --- |
| 1. **Institutional Arrangements related to MRV** |
| *Please provide a summary of the information contained in chapter 2.* |

|  |  |
| --- | --- |
| 1. **National GHG Inventory** | |
| **Time series (years covered by the inventory)** | *e.g. 2000-2010* |
| **Overview: Development of GHG emissions and removals throughout the time series** | |
| *Please include a graph showing how your GHG emissions developed throughout the time series. You may differentiate by sectors or gases, as most appropriate.*  Figure 1. Example for the presentation of national GHG emissions by sector    ***Source****: South Africa’s 1st Biennial Update Report 2014. Draft published for public comment. See* <https://www.environment.gov.za/sites/default/files/docs/publications/southafrica_1stbiennial_updatereport2014.pdf> | |
| *Please provide a summary of the information contained in chapter 3.* | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1. **Mitigation Actions** | | | | | | |
| **Sectors prioritized for mitigation actions (if any)** | | | *e.g. Energy, Agriculture* | | | |
| **Key mitigation actions** | | | | | | |
| **Title of mitigation action** | **Sector a** | **Type of activity** | | **Status (planned, adopted, or implemented)** | **Estimated GHG emissions impact b** | **Estimated sustainable development impacts c** |
| *Programme for energy efficiency measures in buildings* | *Cross-cutting: energy efficiency* |  | |  |  |  |
| *Processing of organic municipal waste* | *Waste* |  | |  |  |  |
|  |  |  | |  |  |  |
|  |  |  | |  |  |  |
|  |  |  | |  |  |  |
|  |  |  | |  |  |  |
| *Please provide a summary of the information contained in chapter 1.13 of the national circumstances (priorities related to mitigation of climate change and of chapter 4.* | | | | | | |

a *E.g. energy, transport, industry, agriculture, forestry, waste, cross-cutting. Parties should feel free to further define sectors as necessary, e.g. cross-cutting – energy efficiency in dwellings.*

b *Relative to a baseline scenario (e.g. tCO2e), annual and cumulative over a defined time period; whether the estimate is ex-ante or ex-post; description of methodology and assumptions used*

c *Over a defined time period (for each social, economic, environmental impact of interest); description of methodology and assumptions used*

|  |  |
| --- | --- |
| 1. **Finance, Technology and Capacity-Building Needs and Support**   **Received** | |
| **International financial resources received in the reporting period (20XX-20XX) [USD]** | *e.g. 4.63 Million USD* |
| **Main international technology transfer, capacity-building and technical support received in the reporting period (20XX-20XX)** | *e.g. Technical support from Country Name for the establishment of refrigerator testing and labelling and national regulations to control sales and recycling of refrigerators* |
| **Main international support needed (qualitative description with quantitative estimate of corresponding financial needs, where applicable)** | *For example:*   * *Funding for the further development of a QA/QC system for the national GHG inventory (250,000 USD)* * *Funding for the set-up of an institutional structure coordinating MRV of mitigation actions* * *Support for the implementation of a NAMA supporting energy efficiencies in buildings.* * *Capacity building for municipal planning departments on green growth options in the transport sector* |
| *Please provide a summary of the information contained in chapter 5.* | |

|  |
| --- |
| 1. **Additional Observations** |
| *Please provide a summary of the information contained in chapter 6.* |

# National Circumstances

***[As required by paragraph 2(a) of UNFCCC Decision: 2/CP.17[[6]](#footnote-7), Annex III.](#_Requirements_related_to)***

***Aim:*** *This chapter provides the overall context and a basis for understanding the information for the forthcoming chapters on the institutional structures for MRV, the GHG inventory, mitigation actions and support. Therefore, the information in this chapter should be presented as an introduction to the contents of the forthcoming chapters. Thus, the description of economic developments as well as of sectors should assist understanding of how the emissions in the GHG inventory have changed over time as well as indicating where potential reductions might be expected. For example, in describing the building sector, details of the age structure, types of buildings and quality of construction will aid understanding of cooling requirements and potential for energy efficiency measures.*

***Drafting guidance*:** *Please fill out the below table using the guiding questions to produce and structure your text. The guiding questions can be deleted once the table has been filled. If you have published a National Communication within the last 2 years, you may simply provide an update on the information on national circumstances provided in the last National Communication. In case you have not published a National Communication within the last 2 years, please provide information according to the guiding questions.*

***Minimum information:*** *The reporting guidelines for BURs require information on national circumstances, but do not specify this information requirement any further. Minimum information to be provided would be any update of information related to the requirements outlined in paragraph 3 of the guidelines for the preparation of national communications from non-Annex I Parties (Annex to decision 17/CP.8), including: your national and regional development priorities, objectives and circumstances, on the basis of which climate change and its adverse impacts will be addressed (such as information on features of your geography, climate and economy which may affect your country’s ability to deal with mitigating and adapting to climate change, as well as information regarding specific needs and concerns arising from the adverse impacts of climate change and/or the impact of the implementation of response measures).*

***Best practice guidance:*** *The table below outlines information requirements that provide a useful orientation on the scope, contents and structure of information on national circumstances, but that are above and beyond requirements.*

|  |
| --- |
| Geographic profile |
| *This section may address the following issues:*   * *Area* * *Latitude* * *Land-use* * *Ecosystems* |
| Climate profile |
| *This section may address the following issues:*   * *Temperature distribution* * *Annual temperature variations* * *Precipitation distribution* * *Climate variability* * *Extreme events* |
| Population profile |
| *This section may address the following issues:*   * *Total population* * *Population density* * *Distribution of the population (e.g. by region, age, gender, income)* * *Information on human development, e.g. information based on national indicators* |
| Economic profile |
| *This section may address the following issues:*   * *Introduction to key economic sectors and likely future developments* * *Current gross domestic product (GDP) alongside historic and future trends* * *GDP per capita (expressed in domestic currency and USD), GDP by sector* * *International trade patterns* |
| Energy |
| *This section may address the following issues (overview of energy resources, by fuel type, where available and appropriate):*   * *Total primary energy supply (using units e.g. TJ, percent, and/or monetary value)* * *Total primary energy consumption* * *Market structure* * *Prices* * *Taxes* * *Subsidies* * *Trade, including key energy exports* * *Key developments in the sector, including national energy plans/strategies and future trends* |
| Transportation |
| *This section may address the following issues (by fuel type, where available and appropriate):*   * *Modes (passenger and freight)* * *Travel distances* * *Fleet characteristics* * *Key developments in transportation sector, including major recent and planned infrastructure developments* |
| Industry |
| *This section may address the following issues:*   * *Structure (market, major industry branches/processes and age structure)* * *Main industrial exports and imports* * *Key developments in industry sector, including planned construction of industrial zones or complexes* |
| Waste |
| *This section may address the following issues:*   * *Waste types (e.g. solid municipal waste, commercial waste, wastewater)* * *Composition of waste types* * *Waste trends in terms of overall amount and composition* * *Management practices (e.g. depositing, incineration, wastewater treatment)* |
| Building stock and urban structure |
| *This section may address the following issues:*   * *Profile of residential and commercial buildings (e.g. age structure, cooling and/or heating demand, refurbishment rate)* * *Trends in urbanization* * *Key urban developments including major city developments planned* |
| Agriculture |
| *This section may address the following issues:*   * *Structure of sector (e.g. major crops, livestock and geographic distribution)* * *Agricultural exports and trends* * *Management practices* * *Sectoral developments such as agricultural strategies or plans* |
| Forest |
| *This section may address the following issues:*   * *Forest types,* * *Forest management practices* * *Exports of timber and other forest products and trends* |
| Development priorities and objectives |
| *This section may address the following issues:*   * *Key sectors or areas of development* * *Development strategies/plans and objectives, if any, and national legislation aiming to implement these strategies* * *Progress towards the UN Millennium Development Goals* * *Barriers encountered in the implementation of the development priorities* |
| Priorities related to mitigation of climate change |
| *This section may address the following issues:*   * *Key sectors or priority areas with regards to mitigation* * *National strategies / plans covering mitigation (e.g. a low emission development strategy), if any, including their timelines and mitigation pledges, if any* * *National legislation aiming to enable mitigation and/or implement mitigation strategies/plans* * *The consultation of stakeholders in climate change strategies and national legislation related to climate change* * *The involvement of regional or local administrations in climate change policy* * *Overlap between development and climate change priorities, related strategies and implementation* * *Barriers encountered in the implementation of mitigation priorities* * *Explanation of how other aspects of national circumstances affect the choice of mitigation actions* |
| Other circumstances |
| *Please provide any additional information which you consider relevant to national circumstances and which is not covered under the previous subchapters.* |

# Institutional Arrangements Related to MRV

[***As required by paragraph 2(a) of UNFCCC Decision: 2/CP.17, Annex III.***](#_UNFCCC_Requirements_related)

***Aim:*** *This section aims to provide an overview on the institutional structures used for the compilation and submission of international and national reports, including National Communications, BURs, the GHG inventory, mitigation actions and support received and needed. Presenting these structures and approaches transparently allows others to learn from your experiences and provides useful information to potential donors.*

***Drafting guidance:*** *We suggest that you fill out the below table using the guiding questions to produce and structure your text. The guiding questions can be deleted once the table has been filled. If you have published a National Communication within the last 2 years, you may simply provide an update on the information on existing institutional arrangements provided in the last National Communication, indicating the major changes or advancements according to the key headings and guiding questions indicated below. In case you have not published a National Communication within the last 2 years, please provide information according to the guiding questions. If institutional arrangements are still being developed, in particular on some aspects of MRV, simply describe the proposed plans with any timeframes.*

*There is no specific guidance available regarding the information this section should include. Yet, in order to provide an overview of the institutional arrangements related to MRV, we suggest certain minimum information elements in the subchapters below. Additional information may be provided as available and appropriate in order to explain existing institutional arrangements in further depth.*

|  |
| --- |
| Government structure relevant to MRV |
| *This section may address the following issues:*   * *Overall government structure (brief overview), preferably with a figure* * *Roles and responsibilities for climate change issues within the government, e.g. responsibilities for definition and/or implementation of climate change related strategies and policies. Approaches for cooperation of the government institutions related to climate change* |
| Overall coordination of MRV |
| ***Minimum information****:*  *This section should address the following issues:*   * *Description of domestic MRV arrangements, including roles, responsibilities and processes for the overall coordination, compilation and submission of National Communications, BURs and national reporting (Details related to the GHG inventory, MRV of mitigation actions and MRV of support received should be set out in the following sections)*   ***Additional information/best practice****:*   * *Recent and proposed changes to the responsibilities and processes* * *How the cooperation between institutions involved has been formalized (e.g. memoranda of understanding)* * *Whether the above structures and processes have been set up to work on a continuous basis and how this is ensured* * *A brief description of the overall quality assurance and quality control processes* * *Documentation and archiving of data related to the compilation of National Communications and BURs* * *Overlaps and interaction between different institutions and MRV processes (e.g. for the GHG inventory, MRV of mitigation actions, MRV of support). (For example, this would cover processes where the same institutions are involved in several of the tasks, whether there is data exchange and alignment between the GHG inventory and MRV for mitigation actions etc.)* * *Plans to further develop and improve the overall MRV system and the institutional arrangements* |
| GHG inventory system |
| ***Additional information/best practice:***  *This section may address the following issues:*   * *Responsibilities and processes for inventory coordination, compilation and submission, including the legal basis establishing responsibilities. Please describe where the responsible entities are found in the government or institutional structure and also describe the compilation process in detail, preferably with a figure* * *Recent and proposed changes to responsibilities and processes* * *Responsibilities for inventory sectors (e.g. Ministry of Agriculture for the agriculture sector)* * *How the cooperation between institutions involved has been formalized (e.g. memoranda of understanding)* * *Whether the above structures and processes have been set up to work on a continuous basis and how this is ensured* * *How data confidentiality is ensured* * *A brief description on the quality assurance, quality control system for the GHG inventory, including the continuous improvement process for the GHG inventory* * *Processes for documentation and archiving of data* * *Compilation process, e.g. how do the responsible institutions work together, whether and which software tools are used for compilation and submission* * *Whether there is exchange with other Parties with regards to the GHG inventory* * *Potential for improvement seen within the structure or developments planned* |
| MRV of mitigation actions |
| ***Minimum information****:*  *This section should address the following issues:*   * *Responsibilities and process for the coordination of the development and implementation of mitigation actions, including NAMAs, particularly related to their MRV*   ***Additional information/best practice****:*  *This section may address the following issues:*   * *How the cooperation between institutions involved has been formalized (e.g. memoranda of understanding), including responsibilities (e.g. coordination, reporting) and processes for the MRV of mitigation actions* * *Recent and proposed changes for the responsibilities and processes* * *The key stakeholders providing information on mitigation actions* * *Existing legal requirements or guidance related to mitigation actions and their MRV* * *Whether the above structures and processes have been set up to work on a continuous basis and how this is ensured* * *How MRV approaches for individual mitigation actions are laid down, e.g. in a MRV plan for a NAMA, and whether there is some form of validation / approval process for MRV approaches* * *Whether alignment between MRV of mitigation actions and the national GHG inventory takes place* * *Which recent trainings of staff with regards to MRV of mitigation actions/ NAMAs have taken place* * *Whether there is exchange with other Parties with regards to MRV of mitigation actions* * *The barriers and lessons learned on the institutional structures for MRV of mitigation actions* |
| MRV of support needed and support received |
| ***Minimum information****:*  *This section should address the following issues:*   * *Responsibilities (e.g. coordination, reporting) and processes for the MRV of support needed including of those involved in the GHG inventory, MRV of mitigation actions and MRV of support received and links to national budget processes* * *Responsibilities and processes for the MRV of support received and any changes to these since the last BUR and/or NC report* * *How it is ensured that support flows or activities from different donors are not double-counted* * *Relevant definitions related to support received and support needed*   ***Additional information/best practice****:*  *This section may address the following issues:*   * *Whether the above structures and processes have been set up to work on a continuous basis and how this is ensured* * *How the cooperation between institutions involved has been formalized (e.g. memoranda of understanding)* * *The key stakeholders providing information on support needed and support received* * *Description of the process to determine which support is needed* * *How support received is coordinated to ensure that support flows or activities from different donors complement each other* * *Whether a climate public expenditure and institutional review (CPEIR) or related studies were carried out and what findings with relevance for the MRV of support received were made* * *Scope of support received that is currently covered by national MRV processes and that is included in the BUR (e.g. international public flows) and planning on increasing this scope in the future (e.g. including national public flows, international private flows)* * *Existing legal requirements or guidance related to MRV of support received* * *How continuity in the MRV of support received is ensured* * *Which recent trainings of staff with regards to MRV of support received have taken place* * *Whether there is exchange with other Parties with regards to MRV of support received* * *Description on how the needs for technology and on technology support received relate to the needs identified in the respective Technology Needs Assessment of the country* |
| Data/information gaps |
| *Please specify any data or information gaps that you have encountered in providing information on your institutional arrangements related to MRV and that pose a challenge to reporting.* |
| Suggestions and needs for improvement of reporting |
| *Please provide any suggestions for overcoming the data/information gaps identified above to improve your reporting on institutional arrangements related to MRV.* |

# The National GHG Inventory (Greenhouse Gas Emissions and Removals)

***[As required by paragraphs 3-9 of UNFCCC Decision: 2/CP.17, Annex III.](#_UNFCCC_Requirements_related_1)***

***Aim:*** *This chapter aims to provide an overview on where your country stands in terms of national GHG emissions’ levels and the approaches and data you have used to estimate them. This helps in understanding the general direction of emission development and the most relevant emission sources, supporting an understanding of whether mitigation actions undertaken to date are proving to be effective as well as of the need for action and where this action might be taken. By reporting transparently, you also contribute to a better understanding of global GHG emissions and the efforts taken to implement the Convention. At the same time, others may learn from your approaches and experience and be able to identify potential for improvement in your approaches. The provision of extra information for each sector (3.2 – 3.5) should be seen as a best practice to support the understanding of the provided information and is not mandatory.*

***Drafting Guidance*:** *Please fill out the below table using the guiding questions to produce and structure your text. The guiding questions can be deleted once the table has been filled. If you have published a National Communication within the last 2 years, you may simply provide an update on the information stated in the last National Communication, assuming the inventory pertains to the calendar year no more than four years prior to the date of the submission of the biennial update report. If not, or in case you have not published a National Communication within the last 2 years, please provide information according to the guiding questions. Decision 2/CP.17 indicates the use of the Revised 1996 IPCC Guidelines for the compilation of GHG inventories of non-Annex I Parties. Nevertheless, their use is not mandatory, hence, non-Annex I Parties may consider the use of the IPCC 2006 Guidelines, which provide more up-to-date default factors and more detailed guidance on methodologies for many inventory categories. Application of IPCC 2006 Guidelines is considered best practice. Based on these developments, this template suggests the use of the reporting tables from the IPCC 2006 Guidelines taking into account the fact that many non-Annex I Parties are already applying these guidelines and demonstrate interest in using them.*

*In compiling the inventory, please give priority to the gases CO2, CH4 and N2O. If you have the capacity, you may also include information on HFCs, PFCs, SF6 and potentially NF3, if applicable. Reporting on indirect GHGs, i.e. precursors like non-metallic volatile organic compounds (NMVOC) or NOx is voluntary.*

*If possible, your time series should include inventory years reported previously in national reports (such as NCs), e.g. 1994 and 2004. It is mandatory that the latest inventory year of your time series is more than four years earlier than the current reporting year, i.e. the year in which you plan to submit your BUR to the UNFCCC. For example, if you intend to submit your BUR in 2018, the latest inventory year covered in that BUR needs to be 2014 or later (2015, 2016 and 2017).*

*As best practice, you may find it useful to carry out a key category analysis[[7]](#footnote-8) which will help you identify the most relevant inventory categories, so you can use your available resources most efficiently. The same applies for an uncertainty assessment[[8]](#footnote-9) of your estimates of emissions and removals, which is optional, but supports the identification of potential for improvement. It is advisable you conduct the uncertainty assessment after the submission of the first BUR.*

Table 10 *provided in the* [*technical annex*](#_GHG_Inventory_Technical) *to this template can be used for the reporting of the national inventory. The Table is based on the 2006 IPCC Guidelines, and can be adapted to the 1996 Guidelines if required; however, this template does not provide guidance on how to do so. The table presents information for one year. You are encouraged to provide the table for each year of your time series, indicating the year it relates to in the table caption. You may decide to present the tables in this chapter or, due to their size, as an annex.*

*The technical annex further provides sectoral tables for national GHG inventories as well as reference to detailed tables on AFOLU. Where you decide to use such tables or excel files (best practice), you are encouraged to provide them for each year of the time series in the annex, always indicating the year a table relates to in its caption.*

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| Inventory overview |
| ***Minimum information****:*  *This section should include the following (please refer to Table A3):*   * *At a minimum, the inventory for the calendar year no more than four years prior to the date of the submission (or more recent years if information is available), if this is your first BUR* * *A GHG inventory according to the relevant UNFCCC reporting guidelines and using the approved methodologies (Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF)* * *Estimates on a gas by gas basis for CO2, CH4 andN2O, and if you wish to report on aggregated GHGs in CO2 equivalents, use the GWPs provided by the IPCC in its Second Assessment Report* * *A national inventory as a summary or update of the inventory reported according to the guidelines on national communications, including the following tables (using notation keys, as appropriate):*   + *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 and greenhouse gas precursors and*   + *Table 2: National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF6* * *To the extent capacities permit also provide estimates of HFCs, PFCs and SF6 and of CO, NOx and NMVOCs, and SOx* * *To the extent possible also report emissions from international aviation and marine bunker fuels (separately in the inventory)* * *To the extent possible you are encouraged to estimate and report CO2 from fuel combustion emissions using both the sectoral and the reference approach, and to explain any large differences between the two approaches* * *You are encouraged to provide a consistent time series back to the years reported in the previous national communications and submit summary information tables of inventories for previous submission years (e.g. for 1994 and 2000)* * *Encouraged to include:*   + *Tables included in annex 3A.2 to chapter 3 of the IPCC good practice guidance for LULUCF*   + *The sectoral report tables annexed to the Revised 1996 IPCC Guidelines* * *It would be useful to provide, for each sector of the inventory, a brief overview of the coverage of gases reported.* * *Encouraged to provide information on methodologies used in the estimation of your emissions, including a brief explanation of the sources of emission factors and activity data. If you report on country-specific sources and/or sinks that are not part of the 1996 IPCC Guidelines, you need to describe the source and/or sink categories, methodologies, emission factors and activity data used.* * *It is encouraged to provide a brief methodological overview at the beginning of each sector of the inventory describing which methods (IPCC guidelines, tiers and emission factors) were used.* * *Additional or supporting information, including sector-specific information, may be supplied in a technical annex* * *You 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* * *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*   ***Additional information/best practice:***  *This section may address the following issues in the form of brief sections:*   * *Use of global warming potentials* * *Which years the time series covers* * *If your previous inventory covered different gases and a different time series (differing in more than only the last reporting year of your current inventory), description of the gases covered and the time series* * *If you have carried out a key category analysis (optional), specification of the key categories* * *Additional graphic regarding the key categories* * *Which emission factor method you used (2006 IPCC Guidelines, default EF, etc.)* * *Information on national emission factors developed, how many and in which sector* * *How you have assessed uncertainties (in line with the tier applied). You can present your results in the sectoral summaries below and have a brief section about uncertainties* * *Similarly, you may include a brief section about QA/QC and planned improvements* * *Areas where data may be further improved in future reports through capacity-building* * *How emissions are developing over the time series. You might consider presenting the developments by gas and/or by sector, using figures and/or tables as appropriate, e.g*. Table 2, d Please *enter the percentage change of GHG emissions between the first and the last year of the time series, e.g. 1990 and 2014.*Table 3*,* d Please *enter the percentage change of GHG emissions between the first and the last year of the time series, e.g. 1990 and 2014.*Figure 2*.* * *To the extent possible, comments on the drivers for emission development.*   Table 2. Total aggregate GHG emissions and removals by year and gas  (Please add/delete columns as necessary to represent the years covered by your timeline), in CO2 eq.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *Year* | *1990* | *1994* | *2000* | *2010* | *2014* | *Percentage change between XXXX and 20XX d* | | *Gas* | ***Gg CO2-eq*** | | | | | | | *CO2* |  |  |  |  |  |  | | *CH4* |  |  |  |  |  |  | | *N2O* |  |  |  |  |  |  | | *HFCs* |  |  |  |  |  |  | | *PFCs* |  |  |  |  |  |  | | *SF6* |  |  |  |  |  |  | | ***Total*** |  |  |  |  |  |  |   d *Please enter the percentage change of GHG emissions between the first and the last year of the time series, e.g. 1990 and 2014.*Table 3. GHG Emissions and removals by year and sector  (Please add/delete columns as necessary to represent the years covered by your timeline, and/or add or adjust rows as necessary to address other emissions sources considered relevant), in CO2 eq.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *Year* | *1990* | *1994* | *2000* | *2010* | *2014* | *Percentage change between XXXX and 20XX d* | | *Sectors* | ***Gg CO2-eq*** | | | | | | | *Energy* |  |  |  |  |  |  | | *Industrial Processes and Product Use* |  |  |  |  |  |  | | *Agriculture, forestry and other land use* |  |  |  |  |  |  | | *Waste* |  |  |  |  |  |  | | ***Total*** |  |  |  |  |  |  |   d *Please enter the percentage change of GHG emissions between the first and the last year of the time series, e.g. 1990 and 2014.*Figure 2. Example for the presentation of national GHG emissions by sector  ***Source****: South Africa’s 1st Biennial Update Report 2014. Draft published for public comment. See* <https://www.environment.gov.za/sites/default/files/docs/publications/southafrica_1stbiennial_updatereport2014.pdf> |
| Energy sector |
| ***Additional information/best practice:***  *This section may address the following issues:*   * *Overview on sectoral emissions: explain how the emissions in the sector have evolved over time. Please provide a table – see for examp*le Table 11*– and/or a figure where possible. Identify the main drivers.* * *Brief summary of tiers used (e.g. mainly Tier 1, Tier 2 only for categories X and Y)* * *Comparison between the sectoral and reference approach, commenting on reasons where there are relevant differences between the results of the two approaches* * *Key information sources and how data was collected (e.g. through national statistics, research, reported directly by stakeholders)* * *Description of any quality assurance/quality control measures applied* * *Any methodological changes applied or other improvements leading to recalculations since you last reported on your GHG inventory (if applicable). If so, please briefly describe them and their impact on emissions (e.g. total overall emissions in the sector increased between 3%-5% over the years of the time series)* * *Sectoral uncertainties, if analysed* |
| Industrial processes and product use (IPPU) |
| ***Additional information/best practice:***  *This section may address the following issues:*   * *Overview on sectoral emissions: explain how the emissions in the sector have evolved over time. Please provide a table – see for example* Table 12*– and/or a figure where possible. Identify the main drivers. Please consider industrial processes, and use of solvents and other products separately.* * *Brief summary of tiers used (e.g. mainly Tier 1, Tier 2 only for categories X and Y)* * *Key information sources and how data was collected (e.g. through national statistics, research, reported directly by stakeholders)* * *Description of any quality assurance/quality control measures applied* * *Any methodological changes applied or other improvements leading to recalculations since you last reported on your GHG inventory (if applicable). If so, please briefly describe them and their impact on emissions (e.g. total overall emissions in the sector increased between 3%-5% over the years of the time series)* * *Sectoral uncertainties, if analysed* |
| Agriculture, forestry and other land use (AFOLU) |
| ***Additional information/best practice:***  *This section may address the following issues:*   * *Overview on sectoral emissions: explain how the emissions in the sector have evolved over time. Please provide a table – see for example* Table 13*– and/or a figure where possible. Identify the main drivers. Please consider livestock and land separately.* * *Where possible, provide information using the detailed tables in Annex 8A.2 to the IPCC 2006 Guidelines (see the* [*technical annex*](#_GHG_Inventory_Technical_1)*)* * *Brief summary of tiers used (e.g. mainly Tier 1, Tier 2 only for categories X and Y)* * *Key information sources and how data was collected (e.g. through national statistics, research, reported directly by stakeholders)* * *Description of any quality assurance/quality control measures applied* * *Any methodological changes applied or other improvements leading to recalculations since you last reported on your GHG inventory (if applicable). If so, please briefly describe them and their impact on emissions (e.g. total overall emissions in the sector increased between 3%-5% over the years of the time series)* * *Sectoral uncertainties, if analysed* |
| Waste |
| ***Additional information/best practice:***  *This section may address the following issues:*   * *Overview on sectoral emissions: explain how the emissions in the sector have evolved over time. Please provide a table – see for example* Table 14. *– and/or a figure where possible. Identify the main drivers.* * *Brief summary of tiers used (e.g. mainly Tier 1, Tier 2 only for categories X and Y)* * *Key information sources and how data was collected (e.g. through national statistics, research, reported directly by stakeholders)* * *Description of any quality assurance/quality control measures applied* * *Any methodological changes applied or other improvements leading to recalculations since you last reported on your GHG inventory (if applicable). If so, please briefly describe them and their impact on emissions (e.g. total overall emissions in the sector increased between 3%-5% over the years of the time series)* * *Sectoral uncertainties, if analysed* |
| Data/information gaps |
| *Please specify any data or information gaps that you encountered in providing information on your national GHG inventory and that pose a challenge to reporting.* |
| Improvement plans |
| *This section should address the following issues*   * *Potential for short-term as well as long-term improvement in GHG inventory* * *Improvements planned within the next two years* |
| Suggestions and needs for improvement of reporting |
| *Please provide any suggestions for overcoming the data/information gaps identified above to improve your reporting on the national GHG inventory.* |

# Mitigation Actions

***[As required by paragraphs 11-13 2(a) of UNFCCC Decision: 2/CP.17, Annex III.](#_UNFCCC_Requirements_related_2)***

***Aim:*** *This chapter provides an overview on your mitigation actions, including but not limited to NAMAs. Effective and transparent reporting on these will allow others to understand how you aim to achieve emission reductions as well as other non-GHG benefits, progress achieved to date and how that progress was monitored, so they can learn from your example. It also allows donors to understand better your requirements for support with regard to mitigation actions.*

***Drafting guidance:*** *Please fill out the below tables using the guiding questions and sub-tables to produce and structure your text. The guiding questions can be deleted later on. If you have published a National Communication within the last 2 years, you may simply provide an update on the information provided in the last National Communication. In case you have not published a National Communication within the last 2 years, please provide information as outlined below.*

***Minimum information:*** *According to the BUR guidelines, you should provide information on actions to mitigate climate change in a tabular format. No specific tabular format for reporting this information is prescribed. The information should address both actions to reduce emissions from sources and to increase removals by sinks.*

***Additional information/best practice:*** *Section 4.2 provides a format for the description of individual mitigation actions. The reporting tables in this section constitute best practice guidance on how to structure the information requirements on mitigation actions as outlined above and presents them in a way so that information is easy to grasp.*

*The description of mitigation actions in these tables includes information on indicators used for the MRV of the mitigation actions. For examples, such indicators relate to the progress of implementation of the NAMA, to GHG reduction impacts and to sustainable development impacts (e.g. air quality improvement, jobs created, reduction of energy costs to households). For each indicator you can enter the target value (e.g. the emission level to be reached), the baseline value (the expected emission level without the mitigation action) and the monitored indicator value (the emission level you monitored). Please keep in mind that the indicator target and baseline value always have to relate to the same point in time, e.g. comparison of emissions levels for one calendar year.*

*We suggest that you include a separate description and table for each mitigation action to be included in section 4.2 and add further subsections for additional mitigation actions that you wish to include. There is no requirement to describe all mitigation actions so you may choose to limit yourself to the actions you consider most relevant for your country.*

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| Overview |
| ***Additional information/best practice****:*  *This section may address the following issues:*   * *A brief qualitative summary of the Party’s key mitigation strategies (including policies, concepts, planned activities and activities being implemented), their objectives and their implementation status, and any nationally determined contributions (NDCs) or sectoral emissions reduction goals* * *Address potential barriers to the planning and implementation of the mitigation actions; and lessons learned from the planning and implementation of the mitigation actions* * *An overview of mitigation activities per sector, using* Table 4 *below* * *A qualitative overview of key impacts and sustainable development benefits (e.g. air quality improvements, job creation, reduction of energy costs per household) incurred by the mitigation actions*   Table 4. Summary of mitigation action progress   |  |  |  | | --- | --- | --- | | No. of mitigation actions (Total) |  | | | GHG emission reduction in total of all listed mitigation actions over a given period of time (*If possible)* e |  | | | **Mitigation actions by sector** | | | | **Short description of mitigation actions** | **Status**  **[idea, planning phase, under implementation]** | **Impact [estimated GHG emission reduction, quantified in tCO2e] over a given time e** | | Energy | | | | *e.g. Expansion of self-supply renewable energy systems (SSRE)* | *Under implementation* | *XXX tCO2e* | | *Example name* | *Planning Phase* | *XXX tCO2e* | | Transport | | | | *e.g. Fuel efficiency standard for light-duty vehicles* | *Idea* | *XXX tCO2e* | | Industry | | | | *e.g. Substitution of HFCs with hydrocarbon refrigerants* | *Planning phase* | *XXX tCO2e* | | Agriculture | | | | *e.g. Feed efficiency program to reduce methane emissions from cattle* | *Idea* | *XXX tCO2e* | | Forestry | | | | *e.g. Shade-grown coffee forest conservation program* | *Under implementation* | *XXX tCO2e* | | Waste | | | | *e.g. Expanding the coverage of mechanical-biological treatment plants* | *Idea* | *XXX tCO2e* | | Cross-cutting | | | | *Example name* | *Idea* | *XXX tCO2e* |   e *Annual and cumulative over a defined time period; whether the estimate is ex-ante or ex-post; description of methodologies and assumptions* |

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| Mitigation Action 1 |
| ***Drafting guidance: Copy and paste these two rows as often as needed to include all desired mitigation actions.***  ***Minimum information****:*  *This section should address the following issues for each mitigation action:*   * *Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases) and quantitative goals and progress indicators;* * *Information on methodologies and assumptions;* * *Objectives of the action and steps taken or envisaged to achieve the action;* * *Information on the progress of implementation of the mitigation and the underlying steps taken or envisaged and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;* * *Information on international market mechanisms.*   ***Additional information/best practice****:*  *This section may address the following issues:*   * *Provision of information on the mitigation action, its aims, activities and indicators used as required by the below table. The table also requires information on the MRV of mitigation actions, particularly the key indicators, which can be related to the progress of implementation (progress indicators) or to the impacts achieved with regards to GHGs (GHG-related indicators) or sustainable development (sustainable development indicators). Information related to MRV is primarily applicable for mitigation actions in the implementation stage, although mitigation actions in the planning stage may indicate plans for MRV. For each indicator, a set of information is required. These include the indicator value, meaning the value monitored in the year reported (e.g. 2014), the indicator baseline, meaning the value expected without the mitigation action in the reporting year and the indicator target, meaning the value the indicator should achieve according to the mitigation action objectives. Often indicators will not have a target value for each year, but only for one year (e.g. an emission level of X Gg CO2-eq by 2025). In this case, target values for specific years can be derived by interpolating between the indicator value in the year before the mitigation action started and the target value.* * *Any further information you would like to provide on the mitigation action, including lessons learned*  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Name of the mitigation action | Status  [idea, planning phase, under implementation] | Implementing institution | Duration (20XX-20YY) | Sector1 and subsector (if applicable) | | Scope  [e.g. national, regional, city-wide] | | Quantitative targets (both GHG-related and non-GHG impacts, as applicable) | | | GHGs covered | | *e.g. Expansion of self-supply renewable energy systems (SSRE)* | *Under implementation* | *Ministry of Energy* | *2014-2020* | *Energy supply, renewable energy* | | *National* | | *Reduction of XXX tCO2 per year*  *Reduction of PM2.5 concentrations by XX μg/m3 in City X, City Y and City Z* | | | *CO2* | |  | Objective of the mitigation action | | | | | | | | | | | |  | *Describe here the objectives of the action, including scope and goals.*  *e.g. “The objective of the mitigation action is to reduce emissions from fossil fuel fired power plants by fostering self-supply renewable energy projects and to contribute to the long-term development of the renewable energy industry”* | | | | | | | | | | | |  | Brief description and activities planned under the mitigation action | | | | | | | | | | | |  | *Describe here the actions and steps taken to achieve the objectives.*  *e.g. “The mitigation action will achieve the objectives through a comprehensive programme of measures to remove barriers and incentivize SSRE investments with three components: a financial component, a technical support component and an outreach component.*  *Financial component: a tax rebate is being developed by the Treasury Office for SSRE investments*  *Technical support component: The Ministry of Energy is coordinating with the Climate Technology Centre & Network (CTCN) to incorporate new courses on technical training on SSRE installation, operation and maintenance at accredited vocational schools in the country.*  *Outreach component: The Ministry of Energy has developed an information campaign in cooperation with the largest utility companies in the country to promote SSRE in mailings with electricity bills.”*  ***Note****: Also, indicate here if the mitigation action is part of any international market mechanisms, if applicable.* | | | | | | | | | | | |  | Estimated outcomes and estimated emission reductions | | | | | | | | | | | |  | *Describe here the estimated GHG-related and non-GHG impacts of the action, both qualitative and quantitative.* | | | | | | | | | | | |  | Methodologies and assumptions | | | | | | | | | | | |  | *Describe here the methodology used to estimate the emission reductions and key assumptions taken.* | | | | | | | | | | | |  | General description of the monitoring and reporting system | | | | | | | | | | | |  | *Include here a list and description of key indicators that will be monitored.* | | | | | | | | | | | |  | Key indicators used | | | | | | | | | | | | Name of the indicator | Unit | Indicator  baseline value | Indicator target value | | Year baseline and target value relate to | | Indicator value in the last reporting year | | Reporting year (20xx) | Most relevant data sources for indicator value | | |  | Progress indicators | | | | | | | | | | | | *e.g. Tax rebate requests* | *Quantity of requests* | *0* | *110,000* | | *2020* | | *0* | | *2014* | *Treasury Office* | | | *e.g. Total installed capacity of SSRE* | *kW* | *5,000 kW* | *60,000 kW* | | *2020* | | *375 kW* | | *2014* | *Treasury Office* | | |  | Indicators related to GHG impacts | | | | | | | | | | | | *e.g. Annual emission reduction* | *tCO2* | *8,760 tCO2* | *100,000 tCO2* | | *2020* | | *657 tCO2* | | *2014* | *Ministry of Energy* | | |  |  |  |  | |  | |  | |  |  | | |  | Indicators related to sustainable development | | | | | | | | | | | | *e.g. Yearly average PM2.5 concentration in City X* | *μg/m3* | *50 μg/m3* | *30 μg/m3* | | *2020* | | *52 μg/m3* | | *2014* | *Municipal Environmental Authority of City X* | | |  |  |  |  | |  | |  | |  |  | | |
| Mitigation Action 2 |
| ***Minimum information****:*  *This section should address the following issues for each mitigation action:*   * *Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases) and quantitative goals and progress indicators;* * *Information on methodologies and assumptions;* * *Objectives of the action and steps taken or envisaged to achieve the action;* * *Information on the progress of implementation of the mitigation and the underlying steps taken or envisaged and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;* * *Information on international market mechanisms.*   ***Additional information/best practice****:*  *This section may address the following issues:*   * *Provision of information on the mitigation action, its aims, activities and indicators used as required by the below table. The table also requires information on the MRV of mitigation actions, particularly the key indicators, which can be related to the progress of implementation (progress indicators) or to the impacts achieved with regards to GHGs (GHG-related indicators) or sustainable development (sustainable development indicators). Information related to MRV is primarily applicable for mitigation actions in the implementation stage, although mitigation actions in the planning stage may indicate plans for MRV. For each indicator, a set of information is required. These include the indicator value, meaning the value monitored in the year reported (e.g. 2014), the indicator baseline, meaning the value expected without the mitigation action in the reporting year and the indicator target, meaning the value the indicator should achieve according to the mitigation action objectives. Often indicators will not have a target value for each year, but only for one year (e.g. an emission level of X Gg CO2-eq by 2025). In this case, target values for specific years can be derived by interpolating between the indicator value in the year before the mitigation action started and the target value.* * *Any further information you would like to provide on the mitigation action, including lessons learned*  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Name of the mitigation action | Status  [idea, planning phase, under implementation] | Implementing institution | Duration (20XX-20YY) | Sector1 and subsector (if applicable) | Scope  [e.g. national, regional, city-wide] | Quantitative targets (both GHG-related and non-GHG impacts, as applicable) | GHGs covered | | *e.g. Expansion of self-supply renewable energy systems (SSRE)* | *Under implementation* | *Ministry of Energy* | *2014-2020* | *Energy supply, renewable energy* | *National* | *Reduction of XXX tCO2 per year*  *Reduction of PM2.5 concentrations by XX μg/m3 in City X, City Y and City Z* | *CO2* | |  | Objective of the mitigation action | | | | | | | |  | *Describe here the objectives of the action, including scope and goals.*  *e.g. “The objective of the mitigation action is to reduce emissions from fossil fuel fired power plants by fostering self-supply renewable energy projects and to contribute to the long-term development of the renewable energy industry”* | | | | | | | |  | Brief description and activities planned under the mitigation action | | | | | | | |  | *Describe here the actions and steps taken to achieve the objectives.*  *e.g. “The mitigation action will achieve the objectives through a comprehensive programme of measures to remove barriers and incentivize SSRE investments with three components: a financial component, a technical support component and an outreach component.*  *Financial component: a tax rebate is being developed by the Treasury Office for SSRE investments*  *Technical support component: The Ministry of Energy is coordinating with the Climate Technology Centre & Network (CTCN) to incorporate new courses on technical training on SSRE installation, operation and maintenance at accredited vocational schools in the country.*  *Outreach component: The Ministry of Energy has developed an information campaign in cooperation with the largest utility companies in the country to promote SSRE in mailings with electricity bills.”*  ***Note****: Also indicate here any international market mechanisms that the mitigation action plans to apply, if applicable.* | | | | | | | |  | Estimated outcomes and estimated emission reductions | | | | | | | |  | *Describe here the estimated GHG-related and non-GHG impacts of the action, both qualitative and quantitative.* | | | | | | | |  | Methodologies and assumptions | | | | | | | |  | *Describe here the methodology used to estimate the emission reductions and key assumptions taken.* | | | | | | | |  | General description of the monitoring and reporting system | | | | | | | |  | *Include here a list and description of key indicators that will be monitored.* | | | | | | | |  | Key indicators used | | | | | | | | Name of the indicator | Unit | Indicator  baseline value | Indicator target value | Year baseline and target relate to | Indicator value in the last reporting year | Reporting year (20xx) | Most relevant data sources for indicator value | |  | Progress indicators | | | | | | | | *e.g. Tax rebate requests* | *Quantity of requests* | *0* | *110,000* | *2020* | *0* | *2014* | *Treasury Office* | | *e.g. Total installed capacity of SSRE* | *kW* | *5,000 kW* | *60,000 kW* | *2020* | *375 kW* | *2014* | *Treasury Office* | |  | Indicators related to GHG impacts | | | | | | | | *e.g. Annual emission reduction* | *tCO2* | *8,760 tCO2* | *100,000 tCO2* | *2020* | *657 tCO2* | *2014* | *Ministry of Energy* | |  |  |  |  |  |  |  |  | |  | Indicators related to sustainable development | | | | | | | | *e.g. Yearly average PM2.5 concentration in City X* | *μg/m3* | *50 μg/m3* | *30 μg/m3* | *2020* | *52 μg/m3* | *2014* | *Municipal Environmental Authority of City X* | |  |  |  |  |  |  |  |  | |
| Mitigation Action 3 |
| ***Minimum information****:*  *This section should address the following issues for each mitigation action:*   * *Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases) and quantitative goals and progress indicators;* * *Information on methodologies and assumptions;* * *Objectives of the action and steps taken or envisaged to achieve the action;* * *Information on the progress of implementation of the mitigation and the underlying steps taken or envisaged and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;* * *Information on international market mechanisms.*   ***Additional information/best practice****:*  *This section may address the following issues:*   * *Provision of information on the mitigation action, its aims, activities and indicators used as required by the below table. The table also requires information on the MRV of mitigation actions, particularly the key indicators, which can be related to the progress of implementation (progress indicators) or to the impacts achieved with regards to GHGs (GHG-related indicators) or sustainable development (sustainable development indicators). Information related to MRV is primarily applicable for mitigation actions in the implementation stage, although mitigation actions in the planning stage may indicate plans for MRV. For each indicator, a set of information is required. These include the indicator value, meaning the value monitored in the year reported (e.g. 2014), the indicator baseline, meaning the value expected without the mitigation action in the reporting year and the indicator target, meaning the value the indicator should achieve according to the mitigation action objectives. Often indicators will not have a target value for each year, but only for one year (e.g. an emission level of X Gg CO2-eq by 2025). In this case, target values for specific years can be derived by interpolating between the indicator value in the year before the mitigation action started and the target value.* * *Any further information you would like to provide on the mitigation action, including lessons learned*  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Name of the mitigation action | Status  [idea, planning phase, under implementation] | Implementing institution | Duration (20XX-20YY) | Sector1 and subsector (if applicable) | Scope  [e.g. national, regional, city-wide] | Quantitative targets (both GHG-related and non-GHG impacts, as applicable) | GHGs covered | | *e.g. Expansion of self-supply renewable energy systems (SSRE)* | *Under implementation* | *Ministry of Energy* | *2014-2020* | *Energy supply, renewable energy* | *National* | *Reduction of XXX tCO2 per year*  *Reduction of PM2.5 concentrations by XX μg/m3 in City X, City Y and City Z* | *CO2* | |  | Objective of the mitigation action | | | | | | | |  | *Describe here the objectives of the action, including scope and goals.*  *e.g. “The objective of the mitigation action is to reduce emissions from fossil fuel fired power plants by fostering self-supply renewable energy projects and to contribute to the long-term development of the renewable energy industry”* | | | | | | | |  | Brief description and activities planned under the mitigation action | | | | | | | |  | *Describe here the actions and steps taken to achieve the objectives.*  *e.g. “The mitigation action will achieve the objectives through a comprehensive programme of measures to remove barriers and incentivize SSRE investments with three components: a financial component, a technical support component and an outreach component.*  *Financial component: a tax rebate is being developed by the Treasury Office for SSRE investments*  *Technical support component: The Ministry of Energy is coordinating with the Climate Technology Centre & Network (CTCN) to incorporate new courses on technical training on SSRE installation, operation and maintenance at accredited vocational schools in the country.*  *Outreach component: The Ministry of Energy has developed an information campaign in cooperation with the largest utility companies in the country to promote SSRE in mailings with electricity bills.”*    ***Note****: Also indicate here any international market mechanisms that the mitigation action plans to apply, if applicable.* | | | | | | | |  | Estimated outcomes and estimated emission reductions | | | | | | | |  | *Describe here the estimated GHG-related and non-GHG impacts of the action, both qualitative and quantitative.* | | | | | | | |  | Methodologies and assumptions | | | | | | | |  | *Describe here the methodology used to estimate the emission reductions and key assumptions taken.* | | | | | | | |  | General description of the monitoring and reporting system | | | | | | | |  | *Include here a list and description of key indicators that will be monitored.* | | | | | | | |  | Key indicators used | | | | | | | | Name of the indicator | Unit | Indicator  baseline value | Indicator target value | Year baseline and target relate to | Indicator value in the last reporting year | Reporting year (20xx) | Most relevant data sources for indicator value | |  | Progress indicators | | | | | | | | *e.g. Tax rebate requests* | *Quantity of requests* | *0* | *110,000* | *2020* | *0* | *2014* | *Treasury Office* | | *e.g. Total installed capacity of SSRE* | *kW* | *5,000 kW* | *60,000 kW* | *2020* | *375 kW* | *2014* | *Treasury Office* | |  | Indicators related to GHG impacts | | | | | | | | *e.g. Annual emission reduction* | *tCO2* | *8,760 tCO2* | *100,000 tCO2* | *2020* | *657 tCO2* | *2014* | *Ministry of Energy* | |  |  |  |  |  |  |  |  | |  | Indicators related to sustainable development | | | | | | | | *e.g. Yearly average PM2.5 concentration in City X* | *μg/m3* | *50 μg/m3* | *30 μg/m3* | *2020* | *52 μg/m3* | *2014* | *Municipal Environmental Authority of City X* | |  |  |  |  |  |  |  |  | |
| Any other information on mitigation actions |
| *Here you may provide any further information on your mitigation actions you wish to report (e.g. related to the policy-making process for mitigation actions described, costs or funds allocated to specific mitigation policies or actions, non-GHG mitigation benefits of policies and actions, interaction with other policies and measures at the national level, MRV of mitigation actions, etc.). In addition to the information provided in the table, you may use this chapter to also provide further information on international market mechanisms (e.g. as a sub-chapter).* |
| Data/information gaps |
| *Please specify any data or information gaps (cross-cutting or action-specific) that you have encountered in providing information on your mitigation policies and actions and that challenge your reporting.* |
| Suggestions and needs for improvement of reporting |
| *Please provide any suggestions for overcoming the data/information gaps identified above to improve your reporting.* |

# Finance, Technology and Capacity Building Needs and Support Received

[***As required by paragraph 14-16 of UNFCCC Decision: 2/CP.17, Annex III.***](#_UNFCCC_Requirements_related_3)

***Aim:*** *The aim of this chapter is twofold: firstly, to present a country‘s constraints and gaps, and related needs for capacity building, technology transfer and financial support; secondly, to provide information on the support received by and pledged to that country in these areas. Information on needs allows donors to understand those needs in detail, so they can provide more targeted support. Information on support received aids understanding of what different countries have received in both qualitative and quantitative senses, which will help in aligning donor strategies and improving transparency about the geographic distribution of support. Furthermore, improved transparency on receipt of support will allow comparisons to be made with donor reporting and inform efforts to address any inconsistencies.*

***Drafting guidance:*** *Please fill out the below structure using the guiding questions and tables to produce and structure your text. The guiding questions can be deleted later on. If you have published a National Communication within the last 2 years, you may simply provide an update on the information provided in the last National Communication. In case you have not published a National Communication within the last 2 years, please provide information as outlined below.*

*The level of detail you are able to provide with regards to support received, is likely to increase over time. You might at present not be able to provide a complete and detailed picture of the support received in the reporting period. Furthermore, there are no internationally agreed definitions and methodologies (e.g. how to assess private finance mobilized) for the reporting on support received. Therefore, please simply provide as much information as you have available, clarifying what it covers and, if possible, how it has been collected.*

*We suggest that you present information using the tabular formats provided below.* Table 6 *presents support received by origin, e.g. public bilateral (from other countries) and public multilateral support (e.g. from the Global Environment Facility), allowing to understand where the support comes from, while* Table 8 *and*

Table 9 *present the focus of single flows (mitigation, adaptation, general/combined), allowing to understand what the support is intended for.*

*If you report information on support needed or received in a different currency than USD, please provide your selection of the currency conversion rate, if you have used any.*

|  |
| --- |
| Support needed |
| ***Minimum information****:*  *This section should address the following issues:*   * *Support needed, in terms of information on constraints and gaps and related financial, technical and capacity-building needs*   ***Additional information/best practice****:*  *This section may address the following issues:*   * *You may provide an explanation on how you define support related to financial, technical and capacity-building needs (e.g. financial contributions, activities, bilateral cooperation etc) and how this relates to support received* * *You may wish to report information on support needs by using the below* Table 5 *which structures the required information in a transparent manner and specifies the type of support that you seek. Please list the needs you have identified, e.g. gaps in capacity or institutional structure and suggest the support adequate to fill these gaps. You may wish to describe how estimates of support needed have been calculated. You may also indicate national budgets available with regards to the support needed. If you are not sure how support might best be provided (e.g. columns “Support needed” and “Specific type of support requested”), indicate this, ideally naming options to consider or national considerations which are of relevance, so that donors can provide you with ideas.* * *You may also indicate how the activities for which support is needed will be continued or sustained, once the support will cease* * *You may also include in this table a description of support needs related to data/information gaps and other challenges to reporting identified in subchapters 2.7, 3.8, 4.7, 5.5 and 6.*   Table 5. List of support needs   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Need identified f | Support needed | Specific type of support requested  [technology transfer, capacity building, financial support] | When and for how long is support needed? | Where financial support is needed, please indicate | | | | National budget available in USD | | Financial support needed in USD | | *e.g. Limited understanding of IPCC first order decay model and how to apply country specific data to it (subchapter 3.5)* | *Capacity building for the waste sector inventory to enable moving towards a country-specific methodology* | *Capacity building* | *As soon as possible* |  |  | | | *e.g. There is no coordination structure for NAMAs* | *Financial support for the salary of 1 staff member leading on the set-up of the coordination structure* | *Financial support* | *2017* | *10,000 USD* | *45,000 USD* | | | *e.g. Funding for implementation of market waste NAMA* | *Financial support for dry anaerobic digestion facilities with a capacity of…* | *Financial support* | *2018* | *30,000 USD* | *500,000 USD* | |   f *Please indicate the subchapter in this report where additional information on the specific need can be found, if applicable.* |
| Financial support received |
| ***Minimum information****:*  *This section should address the following issues:*   * *An overview of financial support received from the Global Environment Facility, bilateral sources, multilateral sources (including the Green Climate Fund), including for the preparation of the current biennial update report.*   ***Additional information/best practice****:*  *This section may address the following issues:*  *You may wish to report information on financial support received by using the below* Table 6 *to structure the required information.*   * *You may include information on private finance mobilized for mitigation and adaptation activities in* Table 6. * *You may also wish to indicate funding from national budgets, if appropriate. Providing this information is optional, but is likely to play a growing role as action on climate change is mainstreamed into national budget processes.* * *As far as possible, please provide an outlook on sums of financial support from the same sources pledged for future periods of time, using two-year timeframes (e.g. 2015-2016, 2017-2018) within* * Table 7 *below.* * *Where possible, please comment on the relation of support committed/disbursed for the reporting period (the timeframe you are reporting on), e.g. if a relevant share of the support committed has not been received or disbursed and or if certain finances committed have been delayed, but are expected to be received at a point in time in the future.* * *As far as possible, please provide the individual finance received and their focus (adaptation, mitigation, unspecified/combined). Information on the focus can among other be inferred from the OECD DAC Rio Markers[[9]](#footnote-10). This would be useful in order to compare the information you present in your BURs with donor reporting on funding provided.* * *If appropriate, please provide links to other paragraphs or subchapters where you describe the implementation of the funding purpose, such as specific mitigation or adaptation actions, of support received that you list here.*   Table 6. Climate-specific financial support received by origin   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | Reporting period (timeframe covered) | | | | | | |  | | *e.g. 2014-2015* | | | | | | |  | |  | **Climate-specific amount** | |  | | | | | | | **Finance mobilised** | **Domestic currency** | **USD equivalent** | **Status (Committed/ Disbursed)** | **Funding sources (ODA, OOF, etc.)** | **Financial instrument (Grant, Concessional loan, Non-concessional loan, Equity, Other)** | **Focus of support (Mitigation Adaptation Cross-cutting, Other)** | **Sector** | **Additional information** | | **Public finance support– bilateral** |  |  |  |  |  |  |  |  | | **Public finance support – Global Environment Facility** |  |  |  |  |  |  |  |  | | **Public finance support – Green Climate Fund** |  |  |  |  |  |  |  |  | | **Public finance support – other multilateral** |  |  |  |  |  |  |  |  | | **Public finance support – national (optional)** |  |  |  |  |  |  |  |  | | **SUBTOTAL Public finance support** |  |  |  |  |  |  |  |  | | **Private finance mobilized (optional, only if available)** |  |  |  |  |  |  |  |  | | **TOTAL** |  |  |  |  |  |  |  |  |     Table 7. Support pledged for the future, by origin   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | Commitments/disbursements related to timeframes not covered by the reporting period g | | | | | Timeframe covered | | Timeframe covered | | |  | ***e.g. 2017-2018*** | | ***e.g. 2019-2020*** | | |  | **Total USD** | **Sources of funding** | **Total USD** | **Sources of funding** | | **Public finance support– bilateral** |  |  |  |  | | **Public finance support – Global Environment Facility** |  |  |  |  | | **Public finance support – Green Climate Fund** |  |  |  |  | | **Public finance support – other multilateral** |  |  |  |  | | **Public finance support – national (optional)** |  |  |  |  | | **SUBTOTAL**  **Public finance support** |  |  |  |  | | **Private finance mobilized (optional, only if available)** |  |  |  |  | | **TOTAL** |  |  |  |  |   g *This relates to pledges which are made for a point of time in later than the reporting period, e.g. for 2017 if the reporting period is 2014-2016.* |
| Technology and capacity building support received |
| ***Minimum information****:*  *This section should address the following issues:*   * *Technology and capacity building support received which was not received as financial support, but e.g. in the form of training.*   ***Additional information/best practice****:*  *This section may address the following issues:*   * *You may wish to report information on technology and capacity-building support received by using the below* Table 8 *and* * Table 9 *to structure the required information.* * *In* Table 8 *and* * Table 9 *briefly describe the activities carried out as well as their focus and the source of the support.* * *If possible, please comment on how this support received has responded to needs for support included in previous reports, how it has met existing needs and how it relates to support needed in section 5.1, e.g. where a need has been addressed by support, but not fully met (e.g. where basic capacity building was provided and now further capacity building is required).*   Table 8. Climate-specific technology received in the reporting timeframe   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Reporting period (timeframe covered) | | | | | | | *e.g. 2014-2015* | | | | | | | Type of support [technology transfer] | Support activity | Year(s) received | Status [ongoing, finalised] | Focus [mitigation, adaptation, unspecified] | Source of support | |  |  |  |  |  |  | |  |  |  |  |  |  |   *Source: Modification of Table A.36 in Ellis et al. 2011*    Table 9. Capacity building support received in the reporting timeframe   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Reporting period (timeframe covered) | | | | | | | *e.g. 2014-2015* | | | | | | | Type of support [capacity building] | Support activity | Year(s) received | Status [ongoing, finalised] | Focus [mitigation, adaptation, unspecified] | Source of support | |  |  |  |  |  |  | |  |  |  |  |  |  |   *Source: Modification of Table A.36 in Ellis et al. 2011* |

|  |
| --- |
| Data/information gaps |
| *Please specify any data or information gaps that you have encountered in providing information on your financial, technology and capacity-building needs and support received and that challenge your reporting.* |
| Suggestions and needs for improvement of reporting |
| *Please provide any suggestions for overcoming the data/information gaps identified above to improve your reporting.* |

# Additional Observations

*This section might include any additional information not suitable for inclusion under sections 1-5 or the technical annex. For example, information related to:*

* *Emission reduction targets (including information on type of targets, underlying methodologies and assumptions, base year, time frame, gases and sectors covered, approach to emissions from the land sector, use of market-based mechanism, estimation of expected emission reductions, etc.) if any,*
* *Progress in achievement of such emission reduction targets,*
* *Adaptation,*
* *Integration of mitigation activities, adaptation and development,*
* *Air quality inventory (e.g. if connected to the GHG inventory),*
* *Lessons learned,*
* *Etc.*

*You may also highlight data or information gaps that prevent more comprehensive reporting on these additional information elements as well as suggestions for improving reporting, and support needs required in order to do so.*

# Technical Annex to the BUR: GHG Inventory

## Summary report for GHG emissions inventory

Table 10. GHG inventory - summary report for national GHG inventory

(Please insert here the year to which the table applies, e.g. 2014)

| GREENHOUSE GAS SOURCE AND SINK CATEGORIES | Net CO2  Emissions / removals | CH4 | N2O | CO | NOx | NMVOCs | SOx | HFCs | | PFCs\* | SF6 \* | Other fluorinated |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **(Gg)** | | | **(Gg)** | | | | | **CO2 equivalent (Gg)** | | | |
| **Total National Emissions and Removals** |  |  |  |  |  |  |  |  | |  |  |  |
| **1. Energy** |  |  |  |  |  |  |  |  | |  |  |  |
| **1A. Fuel Combustion Activities (**Sectoral Approach) |  |  |  |  |  |  |  |  | |  |  |  |
| 1A1. Energy Industries |  |  |  |  |  |  |  |  | |  |  |  |
| 1A2. Manufacturing Industries and Construction |  |  |  |  |  |  |  |  | |  |  |  |
| 1A3. Transport |  |  |  |  |  |  |  |  | |  |  |  |
| 1A4. Other Sectors |  |  |  |  |  |  |  |  | |  |  |  |
| 1A5. Non-specified |  |  |  |  |  |  |  |  | |  |  |  |
| **1B. Fugitive Emissions from Fuels** |  |  |  |  |  |  |  |  | |  |  |  |
| 1B1. Solid Fuels |  |  |  |  |  |  |  |  | |  |  |  |
| 1B2. Oil and Natural Gas |  |  |  |  |  |  |  |  | |  |  |  |
| 1B3. Other Emissions from Energy Production |  |  |  |  |  |  |  |  | |  |  |  |
| **2. Industrial Processes and Product Use** |  |  |  |  |  |  |  |  | |  |  |  |
| **2A. Mineral Industry** |  |  |  |  |  |  |  |  | |  |  |  |
| 2A1. Cement Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2A2. Lime Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2A3. Glass Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2A4. Other Process Uses of Carbonates |  |  |  |  |  |  |  |  | |  |  |  |
| 2A5. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **2B. Chemical Industry** |  |  |  |  |  |  |  |  | |  |  |  |
| 2B1. Ammonia Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2B2. Nitric Acid Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2B3. Adipic Acid Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2B4. Caprolactam, Glyoxal and Glyoxylic Acid Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2B5. Carbide Production |  |  |  |  |  |  |  | |  |  |  |  |
| 2B6. Titanium Dioxide Production |  |  |  |  |  |  |  | |  |  |  |  |
| 2B7. Soda Ash Production |  |  |  |  |  |  |  | |  |  |  |  |
| 2B8. Petrochemical and Carbon Black Production |  |  |  |  |  |  |  | |  |  |  |  |
| 2B9. Fluorochemical Production |  |  |  |  |  |  |  | |  |  |  |  |
| 2B10. Other (please specify) |  |  |  |  |  |  |  | |  |  |  |  |
| **2C. Metal Industry** |  |  |  |  |  |  |  |  | |  |  |  |
| 2C1. Iron and Steel Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2C2. Ferroalloys Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2C3. Aluminium Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2C4. Magnesium Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2C5. Lead Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2C6. Zinc Production |  |  |  |  |  |  |  |  | |  |  |  |
| 2C7. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **2D. Non-Energy Products from Fuels and Solvent Use** |  |  |  |  |  |  |  |  | |  |  |  |
| 2D1. Lubricant Use |  |  |  |  |  |  |  |  | |  |  |  |
| 2D2. Paraffin Wax Use |  |  |  |  |  |  |  |  | |  |  |  |
| 2D3. Solvent Use |  |  |  |  |  |  |  |  | |  |  |  |
| 2D4. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **2E. Electronics Industry** |  |  |  |  |  |  |  |  | |  |  |  |
| 2E1. Integrated Circuit or Semiconductor |  |  |  |  |  |  |  |  | |  |  |  |
| 2E2. TFT Flat Panel Display |  |  |  |  |  |  |  |  | |  |  |  |
| 2E3. Photovoltaics |  |  |  |  |  |  |  |  | |  |  |  |
| 2E4. Heat Transfer Fluid |  |  |  |  |  |  |  |  | |  |  |  |
| 2E5. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **2F. Product Uses as Substitutes for Ozone Depleting Substance** |  |  |  |  |  |  |  |  | |  |  |  |
| 2F1. Refrigeration and Air Conditioning |  |  |  |  |  |  |  |  | |  |  |  |
| 2F2. Foam Blowing Agents |  |  |  |  |  |  |  |  | |  |  |  |
| 2F3. Fire Protection |  |  |  |  |  |  |  |  | |  |  |  |
| 2F4. Aerosols |  |  |  |  |  |  |  |  | |  |  |  |
| 2F5. Solvents |  |  |  |  |  |  |  |  | |  |  |  |
| 2F6. Other Applications |  |  |  |  |  |  |  |  | |  |  |  |
| **2G. Other Product Manufacture and Use** |  |  |  |  |  |  |  |  | |  |  |  |
| 2G1. Electrical Equipment |  |  |  |  |  |  |  |  | |  |  |  |
| 2G2. SF6 and PFCs from Other Product Uses |  |  |  |  |  |  |  |  | |  |  |  |
| 2G3. N2O from Product Uses |  |  |  |  |  |  |  |  | |  |  |  |
| 2G4. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **2H. Other (please specify)** |  |  |  |  |  |  |  |  | |  |  |  |
| 2H1. Pulp and Paper Industry |  |  |  |  |  |  |  |  | |  |  |  |
| 2H2. Food and Beverages Industry |  |  |  |  |  |  |  |  | |  |  |  |
| 2H3. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **3. Agriculture, Forestry and other Land Use (AFOLU)** |  |  |  |  |  |  |  |  | |  |  |  |
| **3A. Livestock** |  |  |  |  |  |  |  |  | |  |  |  |
| 3A1. Enteric Fermentation |  |  |  |  |  |  |  |  | |  |  |  |
| 3A2. Manure Management |  |  |  |  |  |  |  |  | |  |  |  |
| **3B. Land** |  |  |  |  |  |  |  |  | |  |  |  |
| 3B1. Forest Land |  |  |  |  |  |  |  |  | |  |  |  |
| 3B2. Cropland |  |  |  |  |  |  |  |  | |  |  |  |
| 3B3. Grassland |  |  |  |  |  |  |  |  | |  |  |  |
| 3B4. Wetlands |  |  |  |  |  |  |  |  | |  |  |  |
| 3B5. Settlements |  |  |  |  |  |  |  |  | |  |  |  |
| 3B6. Other Land |  |  |  |  |  |  |  |  | |  |  |  |
| **3C. Aggregate Sources and Non-CO2 Emissions Sources on Land** |  |  |  |  |  |  |  |  | |  |  |  |
| 3C1. Biomass Burning |  |  |  |  |  |  |  |  | |  |  |  |
| 3C2. Liming |  |  |  |  |  |  |  |  | |  |  |  |
| 3C3. Urea Application |  |  |  |  |  |  |  |  | |  |  |  |
| 3C4. Direct N2O Emissions from Managed Soils |  |  |  |  |  |  |  |  | |  |  |  |
| 3C5. Indirect N2O Emissions from Managed Soils |  |  |  |  |  |  |  |  | |  |  |  |
| 3C6. Indirect N2O Emissions from Manure Management |  |  |  |  |  |  |  |  | |  |  |  |
| 3C7. Rice Cultivations |  |  |  |  |  |  |  |  | |  |  |  |
| 3C8. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **3D. Other** |  |  |  |  |  |  |  |  | |  |  |  |
| 3D1. Harvested Wood Products |  |  |  |  |  |  |  |  | |  |  |  |
| 3D2. Other (please specify) |  |  |  |  |  |  |  |  | |  |  |  |
| **4. Waste** |  |  |  |  |  |  |  |  | |  |  |  |
| **4A. Solid Waste Disposal** |  |  |  |  |  |  |  |  | |  |  |  |
| **4B. Biological Treatment of Solid Waste** |  |  |  |  |  |  |  |  | |  |  |  |
| **4C. Incineration and Open Burning of Waste** |  |  |  |  |  |  |  |  | |  |  |  |
| **4D. Wastewater Treatment and Discharge** |  |  |  |  |  |  |  |  | |  |  |  |
| **4E. Other (please specify)** |  |  |  |  |  |  |  |  | |  |  |  |
| **5. Other (please specify)** |  |  |  |  |  |  |  |  | |  |  |  |
| **5A. Indirect N2O Emissions from the Atmospheric Deposition of Nitrogen in NOx and NH3** |  |  |  |  |  |  |  |  | |  |  |  |
| **5B. Other (please specify)** |  |  |  |  |  |  |  |  | |  |  |  |
| **Memo items** |  |  |  |  |  |  |  |  | |  |  |  |
| **International bunkers** |  |  |  |  |  |  |  |  | |  |  |  |
| **International Aviation** |  |  |  |  |  |  |  |  | |  |  |  |
| **International Water-borne Transport** |  |  |  |  |  |  |  |  | |  |  |  |
| **Multilateral Operations** |  |  |  |  |  |  |  |  | |  |  |  |
| **CO2 Emissions from Biomass** |  |  |  |  |  |  |  |  | |  |  |  |
| *Notes:*  *\* Optional for Level 1 and Level 2 reporting*  *Note: Shaded cells are not applicable. Cells to report emissions of NOx, CO, NMVOC and SO2 have not been shaded although the physical potential for emissions is lacking for some categories.*  *Source: Table 1 and Table 2 in the annex to UNFCCC decision 17/CP.8, Table A.15 in Ellis et al. 2011 and Table A Summary Table of IPCC 2006 GL, Vol. 1 Ch. 8 Annex 8A.2* | | | | | | | | | | | | |

## Sectoral reports of GHG emission inventory

Table 11*-* Table 13 *were adapted from the 2006 IPCC Guidelines[[10]](#footnote-11) and represent sectoral report tables annexed to this document.*

Table 11. Sectoral report for energy

(Please insert here the year to which the table applies, e.g. 2014)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR THE ENERGY SECTOR (Gg)  (Sheet 1 of 3) | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO2 | CH4 | N2O | NOx | CO | NMVOC | SO2 |
| **1 ENERGY** |  |  |  |  |  |  |  |
| **1A Fuel Combustion Activities** |  |  |  |  |  |  |  |
| **1A1 Energy Industries** |  |  |  |  |  |  |  |
| 1A1a Main Activity Electricity and Heat Production |  |  |  |  |  |  |  |
| 1A1b Petroleum Refining |  |  |  |  |  |  |  |
| 1A1c Manufacture of Solid Fuels and Other Energy Industries |  |  |  |  |  |  |  |
| **1A2 Manufacturing Industries and Construction** |  |  |  |  |  |  |  |
| 1A2a Iron and Steel |  |  |  |  |  |  |  |
| 1A2b Non-Ferrous Metals |  |  |  |  |  |  |  |
| 1A2c Chemicals |  |  |  |  |  |  |  |
| 1A2d Pulp, Paper and Print |  |  |  |  |  |  |  |
| 1A2e Food Processing, Beverages and Tobacco |  |  |  |  |  |  |  |
| 1A2f Non-metallic minerals |  |  |  |  |  |  |  |
| 1A2g Transport Equipment |  |  |  |  |  |  |  |
| 1A2h Machinery |  |  |  |  |  |  |  |
| 1A2i Mining (excluding fuels) and Quarrying |  |  |  |  |  |  |  |
| 1A2j Wood and Wood Products |  |  |  |  |  |  |  |
| 1A2k Construction |  |  |  |  |  |  |  |
| 1A2l Textile and Leather |  |  |  |  |  |  |  |
| 1A2m Non-specified Industry |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR THE ENERGY SECTOR (Gg)  (Sheet 2 of 3) | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO2 | CH4 | N2O | NOx | CO | NMVOC | SO2 |
| **1A3 Transport** |  |  |  |  |  |  |  |
| 1A3a Civil Aviation |  |  |  |  |  |  |  |
| 1A3b Road Transportation |  |  |  |  |  |  |  |
| 1A3c Railways |  |  |  |  |  |  |  |
| 1A3d Water-borne Navigation |  |  |  |  |  |  |  |
| 1A3e Other transportation |  |  |  |  |  |  |  |
| **1A4 Other Sectors** |  |  |  |  |  |  |  |
| 1A4a Commercial/Institutional |  |  |  |  |  |  |  |
| 1A4b Residential |  |  |  |  |  |  |  |
| 1A4c Agriculture/Forestry/Fishing/Fish Farms |  |  |  |  |  |  |  |
| **1A5 Non-specified** |  |  |  |  |  |  |  |
| 1A5a Stationary |  |  |  |  |  |  |  |
| 1A5b Mobile |  |  |  |  |  |  |  |
| 1A5c Multilateral Operations |  |  |  |  |  |  |  |
| **1B Fugitive Emissions from Fuels** |  |  |  |  |  |  |  |
| **1B1 Solid Fuel** |  |  |  |  |  |  |  |
| 1B1a Coal Mining and handling |  |  |  |  |  |  |  |
| 1B1b Uncontrolled Combustion, and Burning Coal Dumps |  |  |  |  |  |  |  |
| 1B1c Solid Fuel Transformation |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR THE ENERGY SECTOR (Gg)  (Sheet 3 of 3) | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO2 | CH4 | N2O | NOx | CO | NMVOC | SO2 |
| **1B2 Oil and Natural Gas** |  |  |  |  |  |  |  |
| 1B2a Oil |  |  |  |  |  |  |  |
| 2B2b Natural Gas |  |  |  |  |  |  |  |
| **1B3 Other Emissions from Energy Production** |  |  |  |  |  |  |  |
| **1C Carbon Dioxide Transport and Storage** |  |  |  |  |  |  |  |
| **1C1 Transport of CO2** |  |  |  |  |  |  |  |
| 1C1a Pipelines |  |  |  |  |  |  |  |
| 1C1b Ships |  |  |  |  |  |  |  |
| 1C1c Other (Please specify) |  |  |  |  |  |  |  |
| **1C2 Injection and Storage** |  |  |  |  |  |  |  |
| 1C2a Injection |  |  |  |  |  |  |  |
| 1C2b Storage |  |  |  |  |  |  |  |
| **Memo Items1:** |  |  |  |  |  |  |  |
| **International Bunkers** |  |  |  |  |  |  |  |
| International Aviation |  |  |  |  |  |  |  |
| International Water-borne Transport |  |  |  |  |  |  |  |
| Multilateral operations |  |  |  |  |  |  |  |
| **CO2 Emissions from Biomass** |  |  |  |  |  |  |  |
| 1 Countries are asked to report emissions from international aviation and marine bunkers and multilateral operations, as well as carbon dioxide (CO2) emissions from biomass, 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 CO2 emissions are not included in the national total, as it is assumed that the biomass produced in a sustainable manner. If the biomass is harvested at an unsustainable rate, net CO2 emissions are accounted for as a loss of biomass stocks in the AFOLU sector. | | | | | | | |

Table 12. Sectoral report for industrial processes and product use

(Please insert here the year to which the table applies, e.g. 2014)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR THE IPPU SECTOR  (Sheet 1 of 4) | | | | | | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO2 | CH4 | N2O | HFCs | PFCs | SF6 | Other  halogenated  gases with  CO2  equivalent  conversion  factors | Other  halogenated  gases without  CO2 equivalent  conversion  factors | NOx | CO | NMVOCs | SO2 |
|  | (Gg) | | | CO2 equivalent (Gg) | | | |  | (Gg) | | | |
| **2 INDUSTRIAL PROCESSES AND PRODUCT USE** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2A Mineral Industry** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2A1 Cement Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2A2 Lime Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2A3 Glass Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2A4 Other Process Uses of Carbonates** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2A4a Ceramics |  |  |  |  |  |  |  |  |  |  |  |  |
| 2A4b Other Uses of Soda Ash |  |  |  |  |  |  |  |  |  |  |  |  |
| 2A4c Non Metallurgical Magnesia Production |  |  |  |  |  |  |  |  |  |  |  |  |
| 2A4d Other (please specify) |  |  |  |  |  |  |  |  |  |  |  |  |
| **2A5 Other (please specify)** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B Chemical Industry** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B1 Ammonia Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B2 Nitric Acid Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B3 Adipic Acid Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B4 Caprolactam, Glyoxal and Glyoxylic Acid Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B5 Carbide Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B6 Titanium Dioxide Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B7 Soda Ash Production** |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR THE IPPU SECTOR  (Sheet 2 of 4) | | | | | | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO2 | CH4 | N2O | HFCs | PFCs | SF6 | Other  halogenated  gases with  CO2  equivalent  conversion  factors | Other  halogenated  gases without  CO2 equivalent  conversion  factors | NOx | CO | NMVOCs | SO2 |
|  | (Gg) | | | CO2 equivalent (Gg) | | | |  | (Gg) | | | |
| **2B8 Petrochemical and Carbon Black Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B8a Methanol |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B8b Ethylene |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B8c Ethylene Dichloride and Vinyl Chloride Monomer |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B8d Ethylene Oxide |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B8e Acrylonitrile |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B8f Carbon Black |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B9 Fluorochemical Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B9a By-product Emissions |  |  |  |  |  |  |  |  |  |  |  |  |
| 2B9b Fugitive Emissions |  |  |  |  |  |  |  |  |  |  |  |  |
| **2B10 Other (please specify)** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C Metal Industry** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C1 Iron and Steel Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C2 Ferroalloys Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C3 Aluminium Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C4 Magnesium Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C5 Lead Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C6 Zinc Production** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2C7 Other (please specify)** |  |  |  |  |  |  |  |  |  |  |  |  |

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| SECTORAL REPORT FOR THE IPPU SECTOR  (Sheet 3 of 4) | | | | | | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO2 | CH4 | N2O | HFCs | PFCs | SF6 | Other  halogenated  gases with  CO2  equivalent  conversion  factors | Other  halogenated  gases without  CO2 equivalent  conversion  factors | NOx | CO | NMVOCs | SO2 |
|  | (Gg) | | | CO2 equivalent (Gg) | | | |  | (Gg) | | | |
| **2D Non-Energy Products from Fuels and**  **Solvent Use** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2D1 Lubricant Use** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2D2 Paraffin Wax Use** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2D3 Solvent Use** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2D4 Other (please specify)** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2E Electronics Industry** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2E1 Integrated Circuit or Semiconductor** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2E2 TFT Flat Panel Display** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2E3 Photovoltaics** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2E4 Heat Transfer Fluid** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2E5 Other (please specify)** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2F Product Uses as Substitutes for Ozone Depleting Substances** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2F1 Refrigeration and Air Conditioning** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2F1a Refrigeration and Stationary Air Conditioning |  |  |  |  |  |  |  |  |  |  |  |  |
| 2F1b Mobile Air Conditioning |  |  |  |  |  |  |  |  |  |  |  |  |
| **2F2 Foam Blowing Agents** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2F3 Fire Protection** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2F4 Aerosols** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2F5 Solvents** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2F6 Other Applications** |  |  |  |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR THE IPPU SECTOR  (Sheet 4 of 4) | | | | | | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO2 | CH4 | N2O | HFCs | PFCs | SF6 | Other  halogenated  gases with  CO2  equivalent  conversion  factors | Other  halogenated  gases without  CO2 equivalent  conversion  factors | NOx | CO | NMVOCs | SO2 |
|  | (Gg) | | | CO2 equivalent (Gg) | | | |  | (Gg) | | | |
| **2G Other Product Manufacture and Use** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2G1 Electrical Equipment** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G1a Manufacture of Electrical Equipment |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G1b Use of Electrical Equipment |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G1c Disposal of Electrical Equipment |  |  |  |  |  |  |  |  |  |  |  |  |
| **2G2 SF6 and PFCs from Other Product Uses** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G2a Military Applications |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G2b Accelerators |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G2c Other (please specify) (3) |  |  |  |  |  |  |  |  |  |  |  |  |
| **2G3 N2O from Product Uses** |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G3a Medical Applications |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G3b Propellant for Pressure and Aerosol Products |  |  |  |  |  |  |  |  |  |  |  |  |
| 2G3c Other (please specify) |  |  |  |  |  |  |  |  |  |  |  |  |
| **2G4 Other (please specify)** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2H Other** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2H1 Pulp and Paper Industry** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2H2 Food and Beverages Industry** |  |  |  |  |  |  |  |  |  |  |  |  |
| **2H3 Other (please specify)** |  |  |  |  |  |  |  |  |  |  |  |  |
| *Note: Shaded cells are not applicable. Cells to report emissions of NOx, CO, NMVOC and SO2 have not been shaded although the physical potential for emissions is lacking for some categories.* | | | | | | | | | | | | |

Table 13. Sectoral report for agriculture, forestry and other land uses (AFOLU)

(Please insert here the year to which the table applies, e.g. 2014)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (Gg)  (Sheet 1 of 3) | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | Net CO2 emissions / removals | CH4 | N2O | NOx | CO | NMVOCs |
| **3 AFOLU** |  |  |  |  |  |  |
| **3A LIVESTOCK** |  |  |  |  |  |  |
| **3A1 Enteric Fermentation** |  |  |  |  |  |  |
| 3A1a Cattle |  |  |  |  |  |  |
| 3A1b Buffalo |  |  |  |  |  |  |
| 3A1c Sheep |  |  |  |  |  |  |
| 3A1d Goats |  |  |  |  |  |  |
| 3A1e Camels |  |  |  |  |  |  |
| 3A1f Horses |  |  |  |  |  |  |
| 3A1g Mules and Asses |  |  |  |  |  |  |
| 3A1h Swine |  |  |  |  |  |  |
| 3A1j Other (please specify) |  |  |  |  |  |  |
| **3A2 Manure Management** |  |  |  |  |  |  |
| 3A2a Cattle |  |  |  |  |  |  |
| 3A2b Buffalo |  |  |  |  |  |  |
| 3A2c Sheep |  |  |  |  |  |  |
| 3A2d Goats |  |  |  |  |  |  |
| 3A2e Camels |  |  |  |  |  |  |
| 3A2f Horses |  |  |  |  |  |  |
| 3A2g Mules and Asses |  |  |  |  |  |  |
| 3A2h Swine |  |  |  |  |  |  |
| 3A2i Poultry |  |  |  |  |  |  |
| 3A2j Other (please specify) |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (Gg)  (Sheet 2 of 3) | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | Net CO2 emissions / removals | CH4 | N2O | NOx | CO | NMVOCs |
| **3B Land** |  |  |  |  |  |  |
| **3B1 Forest Land** |  |  |  |  |  |  |
| 3B1a Forest Land Remaining Forest Land |  |  |  |  |  |  |
| 3B1b Land Converted to Forest Land |  |  |  |  |  |  |
| **3B2 Cropland** |  |  |  |  |  |  |
| 3B2a Cropland Remaining Cropland |  |  |  |  |  |  |
| 3B2b Land Converted to Cropland |  |  |  |  |  |  |
| **3B3 Grassland** |  |  |  |  |  |  |
| 3B3a Grassland Remaining Grassland |  |  |  |  |  |  |
| 3B3b Land Converted to Grassland |  |  |  |  |  |  |
| **3B4 Wetlands** |  |  |  |  |  |  |
| 3B4a Wetlands Remaining Wetlands |  |  |  |  |  |  |
| 3B4b Land Converted to Wetlands |  |  |  |  |  |  |
| **3B5 Settlements** |  |  |  |  |  |  |
| 3B5a Settlements Remaining Settlements |  |  |  |  |  |  |
| 3B5b Land Converted to Settlements |  |  |  |  |  |  |
| **3B6 Other Land** |  |  |  |  |  |  |
| 3B6a Other Land Remaining Other Land |  |  |  |  |  |  |
| 3B6b Land Converted to Other Land |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES (Gg)  (Sheet 3 of 3) | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | Net CO2 emissions / removals | CH4 | N2O | NOx | CO | NMVOCs |
| **3C Aggregate Sources and Non-CO2 Emissions Sources on Land** |  |  |  |  |  |  |
| **3C1 Biomass Burning**  **3C1a Biomass Burning in Forest Land**  **3C1b Biomass Burning in Cropland**  **3C1c Biomass Burnings in Grassland**  **3C1d Biomass Burnings in All Other Land**  **3C2 Liming**  **3C3 Urea Fertilization**  **3C4 Direct N2O Emissions from Managed Soils (3)**  **3C5 Indirect N2O Emissions from Managed Soils**  **3C6 Indirect N2O Emissions from Manure**  **Management**  **3C7 Rice Cultivations**  **3C8 Other (please specify)**  **3D Other**  **3D1 Harvested Wood Products**  **3D2 Other (please specify)** |  |  |  |  |  |  |
| 3C1a Biomass Burning in Forest Land  **3C1b Biomass Burning in Cropland**  **3C1c Biomass Burnings in Grassland**  **3C1d Biomass Burnings in All Other Land**  **3C2 Liming**  **3C3 Urea Fertilization**  **3C4 Direct N2O Emissions from Managed Soils (3)**  **3C5 Indirect N2O Emissions from Managed Soils**  **3C6 Indirect N2O Emissions from Manure**  **Management**  **3C7 Rice Cultivations**  **3C8 Other (please specify)**  **3D Other**  **3D1 Harvested Wood Products**  **3D2 Other (please specify)** |  |  |  |  |  |  |
| 3C1b Biomass Burning in Cropland |  |  |  |  |  |  |
| 3C1c Biomass Burnings in Grassland |  |  |  |  |  |  |
| 3C1d Biomass Burnings in All Other Land |  |  |  |  |  |  |
| **3C2 Liming** |  |  |  |  |  |  |
| **3C3 Urea Fertilization** |  |  |  |  |  |  |
| **3C4 Direct N2O Emissions from Managed Soils** |  |  |  |  |  |  |
| **3C5 Indirect N2O Emissions from Managed Soils** |  |  |  |  |  |  |
| **3C6 Indirect N2O Emissions from Manure Management** |  |  |  |  |  |  |
| **3C7 Rice Cultivations** |  |  |  |  |  |  |
| **3C8 Other (please specify)** |  |  |  |  |  |  |
| **3D Other** |  |  |  |  |  |  |
| **3D1 Harvested Wood Products** |  |  |  |  |  |  |
| *Note: Shaded cells are not applicable. Cells to report emissions of NOx, CO and NMVOC have not been shaded although the physical potential for emissions is lacking for some categories.* | | | | | | |

## Detailed reporting of AFOLU emissions and removals (optional)

*Consider including complete tables from Annex 8A.2 of the IPCC 2006 GL for AFOLU as appropriate and to the extent that capacities permit. The tables can be found under* <http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_8x_Ch8_An2_ReportingTables.pdf>.

Table 14. Sectoral report for waste

(Please insert here the year to which the table applies, e.g. 2014)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SECTORAL REPORT FOR WASTE (Gg)  (Sheet 1 of 1) | | | | | | | |
| **GREENHOUSE GAS SOURCE AND SINK CATEGORIES** | CO21 | CH4 | N2O | NOx | CO | NMVOC | SO2 |
| **4 WASTE** |  |  |  |  |  |  |  |
| **4A Solid Waste Disposal** |  |  |  |  |  |  |  |
| 4A1 Managed Waste Disposal |  |  |  |  |  |  |  |
| 4A2 Unmanaged Waste Disposal Sites |  |  |  |  |  |  |  |
| 4A3 Uncategorized Waste Disposal Sites |  |  |  |  |  |  |  |
| **4B Biological treatment of Solid Waste** |  |  |  |  |  |  |  |
| **4C Incineration and Open Burning of Waste** |  |  |  |  |  |  |  |
| 4C1 Waste Incineration |  |  |  |  |  |  |  |
| 4C2 Open Burning of Waste |  |  |  |  |  |  |  |
| **4D Wastewater Treatment and Discharge** |  |  |  |  |  |  |  |
| 1 Domestic Wastewater Treatment and Discharge |  |  |  |  |  |  |  |
| 2 Industrial Wastewater Treatment and Discharge |  |  |  |  |  |  |  |
| **4E Other (please specify)** |  |  |  |  |  |  |  |
| *Note: Shaded cells are not applicable. Cells to report emissions of NOx, CO, NMVOC and SO2 have not been shaded although the physical potential for emissions is lacking for some categories.* | | | | | | | |
|  | | | | | | | |

Additional Explanatory Information for Users – UNFCCC Requirements

UNFCCC Requirements related to Chapter 1 of the BUR

[Click here to get back to Chapter 1](#NATIONAL CIRCUMSTANCES)

**National Circumstances**

Table A1 presents the UNFCCC requirements covered in Chapter 1 and indicates where each requirement is addressed within the chapter.

Table A1. UNFCCC requirements related to Chapter 1

|  |  |  |
| --- | --- | --- |
| UNFCCC requirement | | Addressed through |
| **Document and Paragraph** | **Text** |
| Decision 2/CP.17[[11]](#footnote-12), Annex III, paragraph 2a | Information on national circumstances | All questions under sections 1.1-1.14, which represent best practices based on the requirements for the description of national circumstances in National Communication of Annex I Parties. They provide a useful orientation for the content and structure, but are not specified in the guidelines for Non-Annex I BURs. |

UNFCCC Requirements related to Chapter 2 of the BUR

**Institutional Arrangements Related to MRV**

Table A2 presents the UNFCCC requirements covered in Chapter 2 of the BUR and indicates where each requirement is addressed within the chapter.

[Click here to get back to Chapter 2](#INSTITUTIONAL ARRANGEMENTS RELATED TO MRV)

Table A2. UNFCCC requirements related to Chapter 2

|  |  |  |
| --- | --- | --- |
| UNFCCC requirement | | Addressed under |
| **Document and Paragraph** | **Text** |
| Decision 2/CP.17, Annex III, paragraph 2a | Information on […] institutional arrangements relevant to the preparation of the national communications on a continuous basis | Chapters 2.1-2.5 |
| Decision 2/CP.17, Annex III, paragraph 2f | Information on domestic measurement reporting and verification | Chapters 2.1-2.5 |
| Decision 2/CP.17, Annex III, paragraph 13 | Parties should provide information on the description of domestic measurement, reporting and verification arrangements. | Chapters 2.1-2.5 |

UNFCCC Requirements related to Chapter 3 of the BUR

**Greenhouse gas emissions and removals**

Table A3 presents the UNFCCC requirements covered in Chapter 3 and indicates where each requirement is addressed within the chapter.

[Click here to get back to Chapter 3](#GREENHOUSE GAS EMISSIONS AND REMOVALS)

Table A3. UNFCCC requirements related to Chapter 3

|  |  |  |
| --- | --- | --- |
| UNFCCC requirement | | Addressed through |
| **Document and Paragraph** | **Text** |
| Decision 2/CP.17, Annex III, paragraph 3 | Non-Annex I Parties should submit updates of national GHG inventories according to paragraphs 8–24 in the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” (hereinafter referred to as the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties) as contained in the annex to decision 17/CP.8.[[12]](#footnote-13). The scope of the updates on national GHG inventories should be consistent with capacities, time constraints, data availabilities and the level of support provided by developed countries Parties for biennial update reporting. | See requirements 8–24 in the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties as contained in the annex to decision 17/CP.8 and how they are addressed through guiding questions below. |
| Decision 2/CP.17, Annex III, paragraph 4 | Non-Annex I Parties should use the methodologies established by the latest UNFCCC guidelines for the preparation of national communications from non-Annex I Parties approved by the Conference of the Parties (COP) or those determined by any future decision of the COP on this matter. | See above. |
| Decision 2/CP.17, Annex III, paragraph 5 | The updates of the sections on the national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol should contain updated data on activity levels based on the best information available using the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (hereinafter referred to as the Revised 1996 IPCC Guidelines), the Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, and the Good Practice Guidance for Land Use, Land-Use Change and Forestry (hereinafter referred to as the IPCC good practice guidance for LULUCF); any change to the emission factor may be made in the subsequent full national communication. | Drafting guidance of chapter 3 |
| Decision 2/CP.17, Annex III, paragraph 6 | Non-Annex I Parties are encouraged to include, as appropriate and to the extent that capacities permit, in the inventory section of the biennial update report, tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF and the sectoral report tables annexed to the Revised 1996 IPCC Guidelines. | Chapter 3.4 |
| Decision 2/CP.17, Annex III, paragraph 7 | Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in the previous national communications. | Drafting guidance of chapter 3 |
| Decision 2/CP.17, Annex III, paragraph 8 | Non-Annex I Parties which have previously reported on their national GHG inventories contained in their national communications are encouraged to submit summary information tables of inventories for previous submission years (e.g. for 1994 and 2000). | Drafting guidance of chapter 3 |
| Decision 2/CP.17, Annex III, paragraph 9-10 | The inventory section of the biennial update report should consist of a national inventory report as a summary or as an update of the information contained in chapter III (National greenhouse gas inventories) of the annex to decision 17/CP.8, including table 1, on “National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and greenhouse gas precursors”, and table 2, on “National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF6”.  Additional or supporting information, including sector-specific information, may be supplied in a technical annex. | Chapter 3.1 and Table 10 |
| **Paragraphs 8–24 of the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” (decision 17/CP.8, FCCC/CP/2002/7/Add.2, Annex I), as referred to under decision 2/CP.17, Annex III, paragraph 3** | | |
| Decision 17/CP.8., Annex I, paragraph 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. | Drafting guidance of chapter 3 |
| Decision 17/CP.8., Annex I, paragraph 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. | Drafting guidance of chapter 3 |
| Decision 17/CP.8., Annex I, paragraph 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. | Drafting guidance of chapter 3 |
| Decision 17/CP.8., Annex I, paragraph 13 | 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. | Guiding questions under chapter 2.3 |
| Decision 17/CP.8., Annex I, paragraph 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. | Drafting guidance of chapter 3 |
| Decision 17/CP.8., Annex I, paragraph 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). | Drafting guidance of chapter 3 |
| Decision 17/CP.8., Annex I, paragraph 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 (NOx) and non-methane volatile organic compounds (NMVOCs). | Drafting guidance of chapter 3 |
| Decision 17/CP.8., Annex I, paragraph 17 | Other gases not controlled by the Montreal Protocol, such as sulphur oxides (SOx), included in the IPCC Guidelines, may be included at the discretion of the Parties. | Drafting guidance of chapter 3 |
| Decision 17/CP.8., Annex I, paragraph 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. | See Table 10-Table 11 and guiding questions in chapter 3.2 |
| Decision 17/CP.8., Annex I, paragraph 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. | See Table 10 |
| Decision 17/CP.8., Annex I, paragraph 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. | Chapter 3.1 |
| Decision 17/CP.8., Annex I, paragraph 21 | 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. | Chapter 3.1, chapters 3.2-3.5 with regards to methodologies, emission factors and activity data  *You may also include in this table a description of support needs related to data/information gaps and other challenges to reporting identified in subchapters 2.7, 3.8, 4.7, 5.5 and 6.*  Table 5. List of support needs with regards to capacity building needs. |
| Decision 17/CP.8., Annex I, paragraph 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. | Table 10 |
| Decision 17/CP.8., Annex I, paragraph 23 | Non-Annex I Parties are encouraged to include in their national communications the inventory sectoral tables and worksheets of the IPCC, in both electronic and hard copy format. | Table 11- Table 14. |
| Decision 17/CP.8., Annex I, paragraph 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 | Drafting guidance of chapter 3 |

UNFCCC Requirements related to Chapter 4 of the BUR

**Mitigation Actions**

Table A4 presents the UNFCCC requirements covered in Chapter 4 and indicates where each requirement is addressed within the chapter.

[Click here to get back to Chapter 4](#MITIGATION POLICIES AND ACTIONS)

Table A4. UNFCCC requirements related to Chapter 4

|  |  |  |
| --- | --- | --- |
| UNFCCC requirement | | Addressed through |
| **Document and Paragraph** | **Text** |
| Decision 2/CP.17, Annex III, paragraph 11 | Non-Annex I Parties should provide information, in a tabular format, on actions to mitigate climate change, by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol. | Chapters 4.1, 4.2, 4.5 |
| Decision 2/CP.17, Annex III, paragraph 12 | For each mitigation action or groups of mitigation actions including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information to the extent possible:  (a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;  (b) Information on methodologies and assumptions;  (c) Objectives of the action and steps taken or envisaged to achieve that action;  (d) Information on the progress of implementation of the mitigation actions and the underlying steps taken or envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;  (e) Information on international market mechanisms. | Chapter 4.2 |

UNFCCC Requirements related to Chapter 5 of the BUR

**Financial, technology and capacity building needs and support received**

Table A5 presents the UNFCCC requirements covered in Chapter 5 and indicates where each requirement is addressed within the chapter.

[Click here to get back to Chapter 5](#FINANCIAL, TECHNOLOGY AND CAPACITY BUILDING NEEDS AND SUPPORT RECEIVED)

Table A5. UNFCCC requirements related to Chapter 5

|  |  |  |
| --- | --- | --- |
| UNFCCC requirement | | Addressed through |
| **Document and Paragraph** | **Text** |
| Decision 2/CP.17, Annex III, paragraph 14 | Non-Annex I Parties should provide updated information on constraints and gaps, and related financial, technical and capacity-building needs. | Chapter 5.1 and Table 5 |
| Decision 2/CP.17, Annex III, paragraph 15 | Non-Annex I Parties should also provide updated information on financial resources, technology transfer, capacity-building and technical support received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current biennial update report. | Chapter 5.2 - 5.3 and Table 6-  Table 9 |
| Decision 2/CP.17, Annex III, paragraph 16 | With regard to the development and transfer of technology, non-Annex I Parties should provide information on technology needs, which must be nationally determined, and on technology support received. | Chapter 5.1 and Table 5 |

1. The *Information Matters* project, implemented by the GIZ and funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) under the International Climate Initiative (IKI) provides technical support to a number of selected partner countries to strengthen their national capacities for reporting under the UNFCCC with a special focus on the preparation of Biennial Update Reports (BURs). [↑](#footnote-ref-2)
2. FCCC/CP/2011/9/Add.1, decision 2/CP.17, Annex III; [http://unfccc.int/meetings/durban\_nov\_2011/session/6294/php/view/decisions.php - c](http://unfccc.int/meetings/durban_nov_2011/session/6294/php/view/decisions.php#c) [↑](#footnote-ref-3)
3. FCCC/CP/2011/9/Add.1; decision 2/CP.17, paragraphs 41 (f)-(g) [↑](#footnote-ref-4)
4. For further information see <http://www.ipcc-nggip.iges.or.jp/presentation/LULUCF-AFOLU.pdf> [↑](#footnote-ref-5)
5. Ellis, J., Briner, G., Moarif, S., Buchner, B., 2011, *Frequent and flexible: options for reporting guidelines for biennial reports*, OECD and IEA, COM/ENV/EPOC/IEA/SLT(2011)2, <http://www.oecd.org/env/cc/48073760.pdf>. [↑](#footnote-ref-6)
6. Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011. Addendum Part Two: Action taken by the Conference of the Parties at its seventeenth session; FCCC/CP/2011/9/Add.1; <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf> [↑](#footnote-ref-7)
7. For guidance on how to carry out a key source category analysis, please consult chapter 7 of the IPCC 2000 Good Practice Guidance, <http://www.ipcc-nggip.iges.or.jp/public/gp/english/7_Methodological.pdf> or consult Volume 1 chapter 4 of the IPCC 2006 Guidelines, <http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_4_Ch4_MethodChoice.pdf>, for guidance on how to carry out a key category analysis. [↑](#footnote-ref-8)
8. For guidance on how to undertake uncertainty analysis of the GHG inventory, please consult Volume 1 chapter 3 of the IPCC 2006 Guidelines, <http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_3_Ch3_Uncertainties.pdf>. [↑](#footnote-ref-9)
9. See The Handbook on the OECD Climate Markers, under <http://www.oecd.org/dac/stats/48785310.pdf> for more information. [↑](#footnote-ref-10)
10. 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, Annex 8A.2 Reporting Tables, <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol1.html> [↑](#footnote-ref-11)
11. FCCC/CP/2011/9/Add.1, [http://unfccc.int/meetings/durban\_nov\_2011/session/6294/php/view/decisions.php - c](http://unfccc.int/meetings/durban_nov_2011/session/6294/php/view/decisions.php#c) [↑](#footnote-ref-12)
12. FCCC/CP/2002/7/Add.2; <http://unfccc.int/resource/docs/cop8/07a02.pdf> [↑](#footnote-ref-13)