

Climate MRV for Africa – Phase 2 Development of National GHG Inventory GHG Inventory Requirements for Non-Annex I Parties



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What is MRV?

- **MRV:** is a term used to describe all measures which countries take to collect data on **emissions**, mitigation actions and support
 - **Measure:** Direct or estimated calculations **following strict guidance and protocols**. This can include direct measurement using devices or estimation using simple methods or complex models
 - **Report:** Documentation intended to inform all interested parties. This includes information on methodologies, assumptions and data.
 - **Verify:** Specific procedures or expert review used to verify the quality of the data. Verification can be internal or external



What is a GHG Inventory?

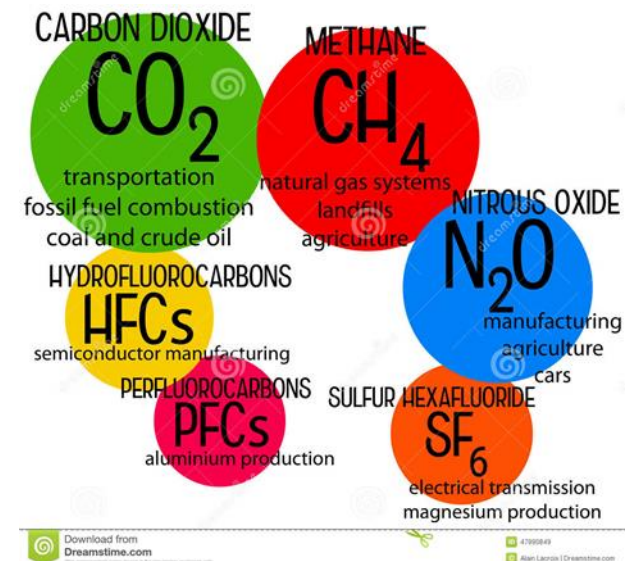
- Emission inventory is an accounting of all anthropogenic GHGs emitted to the atmosphere
- Anthropogenic emissions and removals means that GHGs in national inventories are a result of human activities
- National inventories include GHGs emissions and removals taking place within national territory and offshore areas over which the country has jurisdiction

CO₂ SF₆ CH₄ N₂O HFCs PFCs



What Constitutes a GHG Inventory?

- The GHG data reported by Parties contain estimates for direct greenhouse gases:
 - CO₂ - Carbon dioxide
 - CH₄ – Methane
 - N₂O - Nitrous oxide
 - PFCs – Perfluorocarbons
 - HFCs – Hydrofluorocarbons
 - SF₆ - Sulphur hexafluoride



As well as for the indirect greenhouse gases such as SO₂, NO_x, CO and NMVOC.

GHG Inventory – Why?

- The ultimate objective of the Climate Change Convention (UNFCCC) is to achieve stabilization of greenhouse gas concentrations in the atmosphere
- Stabilization should be at a level that would prevent dangerous anthropogenic interference with the climate system
- Data on GHGs emissions from all countries is an important element to achieve this objective



GHG Inventory - Reporting

National Communication from a Non-Annex I Party

National circumstances and institutional arrangements

National greenhouse gas inventories

General description of steps taken or envisaged to implement the convention: Programmes containing measures to facilitate adequate adaptation to climate change, Programmes containing measures to mitigate climate change

Other information considered relevant to the achievement of the objective to the Convention: Technology Transfer, Research and Systematic Observation, Education Training and Public Awareness, Capacity Building, Information and networking

Constraints and gaps, and related financial, technical and capacity needs

GHG Inventory - Reporting (cont)

Biennial Update Report from a Non-Annex I Party

National circumstances and institutional arrangements relevant to the preparation of the national communications on a continuous basis

National greenhouse gas inventories

Mitigation actions and their effects, including associated methodologies and assumptions

Constraints and gaps, and related financial, technical and capacity needs, a description of support needed and received

Information on the level of support received to enable the preparation and submission of biennial update reports

Information on domestic MRV

Any other relevant information relevant

GHG Inventory – Key Principles

- National GHG inventories must be prepared in accordance with the **TACCC** principles:
 - Transparency
 - Accuracy
 - Completeness
 - Comparability
 - Consistency



Guidelines – National Communications (NC)

- Non-Annex I parties should use **1996 guidelines** and are encouraged to use **IPCC GPG (Good Practice Guidelines)**
- Although not a formal request, the UNFCCC welcomes the use of the **2006 IPCC guidelines**
- Non-Annex I Parties are encouraged to undertake **key source analysis**
- Parties **may use different methods (tiers)** depending on national circumstances and data availability



Guidelines – NC (cont)

- Describe procedures and arrangements undertaken to collect and archive data and role of the institutions involved
- Shall Provide estimates of anthropogenic emissions of **CO₂**, **CH₄** and **N₂O** by sources and removals by sinks
- Encouraged to provide estimates for **SF₆**, **HFCs**, and **PFCs**
- Encouraged to estimate and report CO₂ fuel combustion emissions using both the **sectoral** and the **reference** approaches
- Non-Annex I Parties wishing to report **CO₂ equivalents** should use the GWP of **SAR (IPCC Second Assessment Report)**

Guidelines – NC (cont)

- Report emissions from international aviation and marine bunker fuels separately
- Provide information on methodologies used, sources of emission factors and activity data and uncertainties
- Identify areas where data may be further improved in future communications
- Encouraged to use Tables 1 and 2 in reporting (and provide IPCC sectoral tables and worksheets)



Guidelines – NC (cont)

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

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

Note: Shaded cells do not require entries.

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

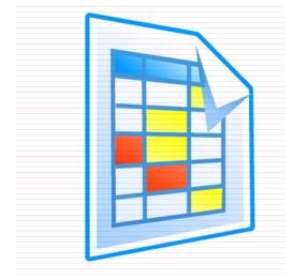
Greenhouse gas source and sink categories	HFCs ^{a,b} (Gg)			PFCs ^{a,b} (Gg)			SF ₆ ^a (Gg)
	HFC-23	HFC-134	Other (to be added)	CF ₄	C ₂ F ₆	Other (to be added)	
Total national emissions and removals	X	X	X	X	X	X	X
1. Energy							
A. Fuel combustion (sectoral approach)							
1. Energy industries		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

Guidelines - BUR

- Non-Annex I Parties shall submit a BUR **every two years**, either as:
 - a summary of parts of their national communication in the year in which the national communication is submitted or
 - a stand-alone update report
- Should submit updates of national GHG inventories **according to national communications guidelines**
- Shall cover a calendar year that does not precede the submission date by more than **four years**

Guidelines – BUR (cont)

- Submit summary information tables of inventories for previous submission years (e.g., for 1994 and 2000)
- Should contain **Tables 1 and 2** in the NC guidelines
- Encouraged to include tables in annex 3A.2 to the IPCC Good Practice Guidance for LULUCF and the sectoral report tables of 1996 IPCC Guidelines
- Additional or supporting information, including sector-specific information may be supplied in a technical annex



Guidelines – BUR (cont)

- The updates of the sections on the national inventories should contain updated data on activity levels based on the best information available using:
 - ❖ Revised 1996 IPCC Guidelines
 - ❖ Good Practice Guidance and Uncertainty Management
 - ❖ IPCC good practice guidance for LULUCF
- Any change to the emission factor may be made in the subsequent full national communication



Thank you!

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