



# **QA/QC OPERATIONS ON THE NATIONAL GHG INVENTORY AND DATA MANAGEMENT SYSTEM**

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## The development of an emission inventory is a complex task considering:

- ◆ The large amount of data to handle,
- ◆ The large variety of quantitative and qualitative information sources,
- ◆ Methodologies to be implemented to quantify each activity,
- ◆ The need to provide information as timely and accurate as possible while respecting resource constraints and deadlines,
- ◆ The respect of the fundamental qualities attached to inventories (consistency, completeness, transparency, etc.).

➡ A control and quality assurance is required to perform this task satisfactorily.

➡ QA/QC stringency mainly depends on the system purpose, not on its complexity

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## ***Quality Control (QC)***

*System of **routine technical activities** to assess and maintain the quality of the inventory as it is being compiled. It is **performed by personnel compiling the inventory**. The QC system is designed to:*

- Provide routine and consistent checks to ensure data integrity, correctness, and completeness;
- Identify and address errors and omissions;
- Document and archive inventory material and record all QC activities.

## ***Quality Assurance (QA)***

*Planned system of **review procedures** conducted by **personnel not directly involved in the inventory compilation/development process**.*

## ***Verification***

**Methods that are external to the inventory and apply independent data**, including comparisons with inventory estimates made by other bodies or through alternative methods. **Verification activities may be constituents of both QA and QC.**

The following are the major elements to be considered in the development of a QA/QC system to be implemented in tracking inventory compilation:

- An inventory agency responsible for coordinating QA/QC activities
- A QA/QC plan
- General and source category-specific QC procedures
- QA review procedures
- Reporting, documentation, and archiving procedures

## Quality control

- **consistency check of input data** from providers (e.g. plant register data, national activity data)
  - compare magnitude and units
  - check trends
  
- **methodology review** (internal and possibly external – national experts, working groups) in case of change/improvement of the methodology
  
- **detailed description of the methods implemented**  
Calculations and methodologies developed are always clear ... for their authors

## Quality control

- **track of changes** in calculation files (who, when, what)
- **calculation check** by a competent person, different from the one that carried out the work. This check is recorded (date + checker check result)
- **systematic annual checking of emission results** for all sectors (relevant calculations, planned improvements/corrections actually implemented or not, time series consistency, recalculation checks)
- **checks of resulting inventory databases and reporting processes** (integrity, consistency, completeness)

## Quality control

- **archiving and referencing:** find calculation files and their sources. This archive should be kept secure manner (read only files, internal and remote backups, computer and paper files)

- **research, recording, and dealing with errors**

This is one of the pillars of a quality system, necessary for the pursuit of the goal of continuous improvement of inventories. Errors must be recorded to enable the implementation of corrective actions. It can be achieved by a specific tool, or even in a simple excel file.

## Quality assurance

- made all inventory reports being publicly available, questions and comments received from stakeholders contribute to the QA
- organize bilateral operations / exchanges with other foreign experts
- national expert group reviews on results and methodologies
- UNFCCC reviews



Thank You

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