

Session 1: Presentation of QA/QC Requirements and Structure

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This session will cover:

- *Overall summary of what QA/QC planning is in the context of GHG Inventory*
- *What should be included within your QA/QC plan*
- *Examples*

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What do we want our GHG Inventory to be

Under the ETF, countries are required to submit their National Inventory as either a standalone document, **or within their National Biennial Transparency Report. These GHG Inventories need to be...**

High quality inventory of anthropogenic emissions and removals of greenhouse gases that is both credible and convincing

The way in which the quality of an inventory is assessed is based on its transparency, accuracy, completeness, consistency, and comparability.

What do we need to achieve these qualities...

- **A good QA/QC system**
- *Tools to focus resources on where we get the maximum benefit*
- *An inventory plan covering QA/QC, timing, deliverables and stakeholder involvement*
- **Consistent management to achieve this**

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What is 'Quality Control' and 'Quality Assurance'

System of routine technical activities to assess and maintain the quality of the inventory as it is being compiled

Performed by personnel compiling the inventory

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

Planned system of review procedures conducted by personnel not directly involved in the inventory compilation/development process (preferably by independent third parties)

Performed upon a completed inventory following the implementation of QC procedures

- Verify that measurable objectives were met
- Ensure that the inventory represents the best possible estimates given the current state of scientific knowledge and data availability
- Support the effectiveness of the QC programme

and Verification...

- Collection of activities and procedures conducted during the planning and development, or after completion of an inventory that can help to establish its reliability for the intended applications of the inventory
- Methods that are external to the inventory and apply independent data, including comparisons with inventory estimates made by other bodies or through alternative methods
- May be constituents of both QA and QC

What is 'QA/QC' in the ETF...

In the context of a National GHG Inventory

To enhance the transparency, accuracy, consistency, comparability and completeness of the GHG Inventory

In the context of a National GHG Inventory, QA/QC plan is guided and based upon:

- MPGs (18/CMA.1)
- The IPCC Guidelines for GHG Inventories

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B. National circumstances and institutional arrangements

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

- (a) Its national entity or national focal point with overall responsibility for the national inventory;*
- (b) Its inventory preparation process, including division of specific responsibilities of institutions participating in the inventory preparation to ensure that sufficient activity data collection, choice and development of methods, emission factors and other parameters are in accordance with the IPCC guidelines referred to in paragraph 20 below and these MPGs;*
- (c) Its archiving of all information for the reported time series, including all disaggregated emission factors and activity data, all documentation about generating and aggregating data, including quality assurance/quality control (QA/QC), review results and planned inventory improvements;*
- (d) Its processes for the official consideration and approval of the inventory.*

E. Reporting guidance

1. Information on methods and cross-cutting elements

§46. Each Party shall report the QA/QC plan and information on QA/QC procedures already implemented or to be implemented in the future, in accordance with paragraphs 34–36 above.

Report:
QA/QC Plan
QA/QC
Implementation

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C. Methods

6. Quality assurance/quality control

QA/QC Plan

§34. Each Party shall elaborate an inventory QA/QC plan in accordance with the IPCC guidelines referred to in paragraph 20 above, including information on the inventory agency responsible for implementing QA/QC; those developing country Parties that need flexibility in the light of their capacities with respect to this provision are instead encouraged to elaborate an inventory QA/QC plan in accordance with the IPCC guidelines referred to in paragraph 20 above, including information on the inventory agency responsible for implementing QA/QC.

General, category specific QC Procedures QA Peer Review

§35. Each Party shall implement and provide information on general inventory QC procedures in accordance with its QA/QC plan and the IPCC guidelines referred to in paragraph 20 above; those developing country Parties that need flexibility in the light of their capacities with respect to this provision are instead encouraged to implement and provide information on general inventory QC procedures in accordance with its QA/QC plan and the IPCC guidelines referred to in paragraph 20 above. In addition, Parties should apply category-specific QC procedures in accordance with the IPCC guidelines referred to in paragraph 20 above for key categories and for those individual categories in which significant methodological changes and/or data revisions have occurred. In addition, Parties should implement QA procedures by conducting a basic expert peer review of their inventories in accordance with the IPCC guidelines referred to in paragraph 20 above.

Ref. Approach

§36. Each Party should compare the national estimates of CO₂ emissions from fuel combustion with those obtained using the reference approach, as contained in the IPCC guidelines referred to in paragraph 20 above, and report the results of this comparison in its national inventory report.

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QA/QC in the 2006 IPCC Guidelines

6	Quality Assurance / Quality Control and Verification	
6.1	Introduction	6.5
6.2	Practical considerations in developing QA/QC and verification systems	6.6
6.3	Elements of a QA/QC and verification system	6.7
6.4	Roles and responsibilities	6.7
6.5	QA/QC plan	6.8
6.6	General QC procedures	6.9
6.7	Category-specific QC procedures	6.12
6.7.1	Emissions factor QC	6.12
6.7.2	Activity data QC	6.14
6.7.3	Calculation-related QC	6.16
6.8	QA procedures	6.17
6.9	QA/QC and uncertainty estimates	6.18
6.10	Verification	6.19
6.10.1	Comparisons of national estimates	6.19
6.10.2	Comparisons with atmospheric measurements	6.21
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6.11.1	Internal documentation and archiving	6.22
6.11.2	Reporting	6.23
	References	6.23
Annex 6A.1	QC checklists	6.25

Provides explanation on
QA/QC
Examples of
general/category specific
QA procedures

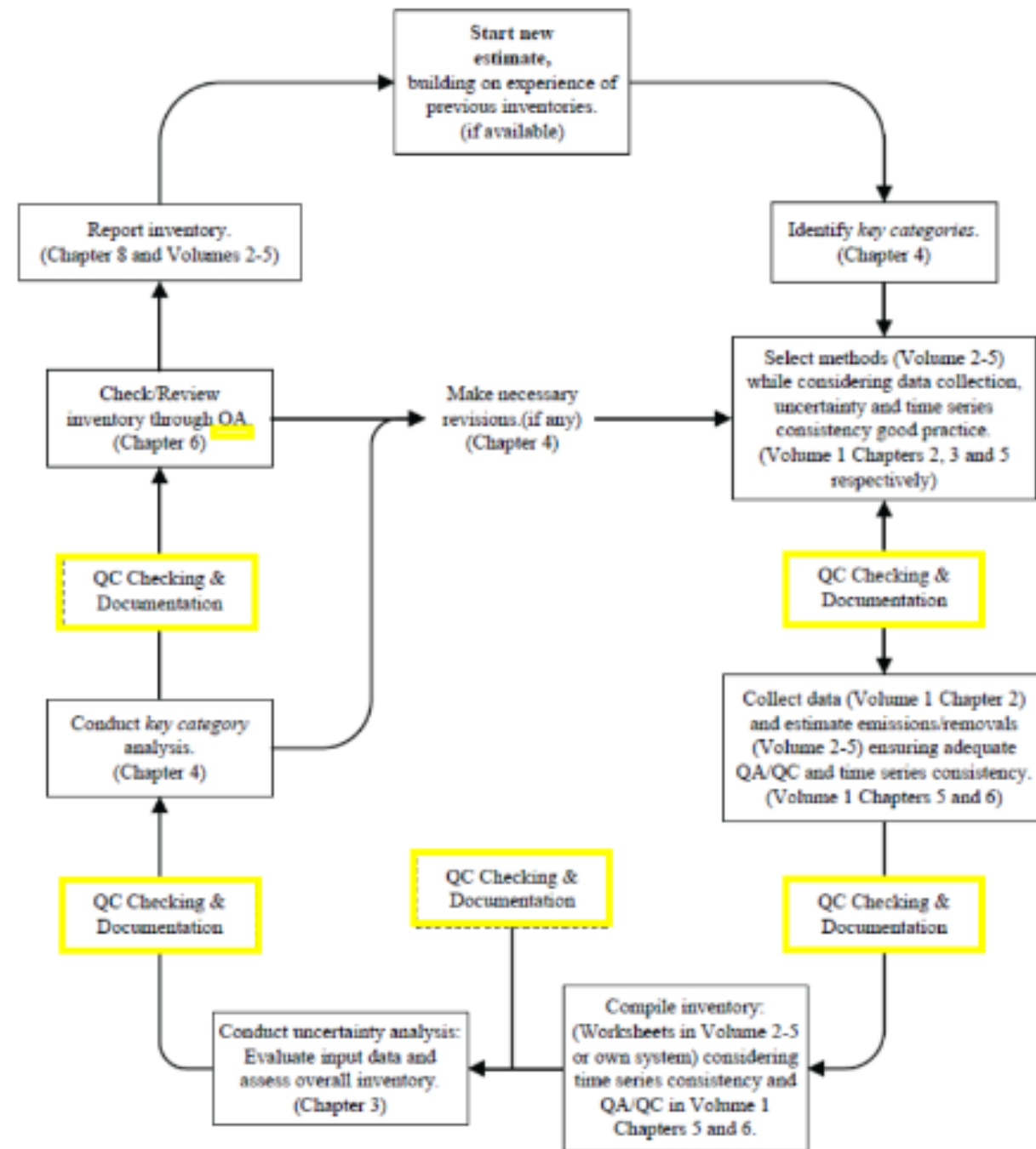
QA/QC in the 2006 IPCC Guide

The periodic review and revision of the QA/QC plan is an important element to drive the continued inventory improvement. (6.5 QA/QC PLAN)

To enable continuous improvement to inventory estimates (6.11.1 Internal documentation and archiving)

Part of Inventory development plan
(1.5 Compiling An Inventory)

Figure 1.1 Inventory development cycle



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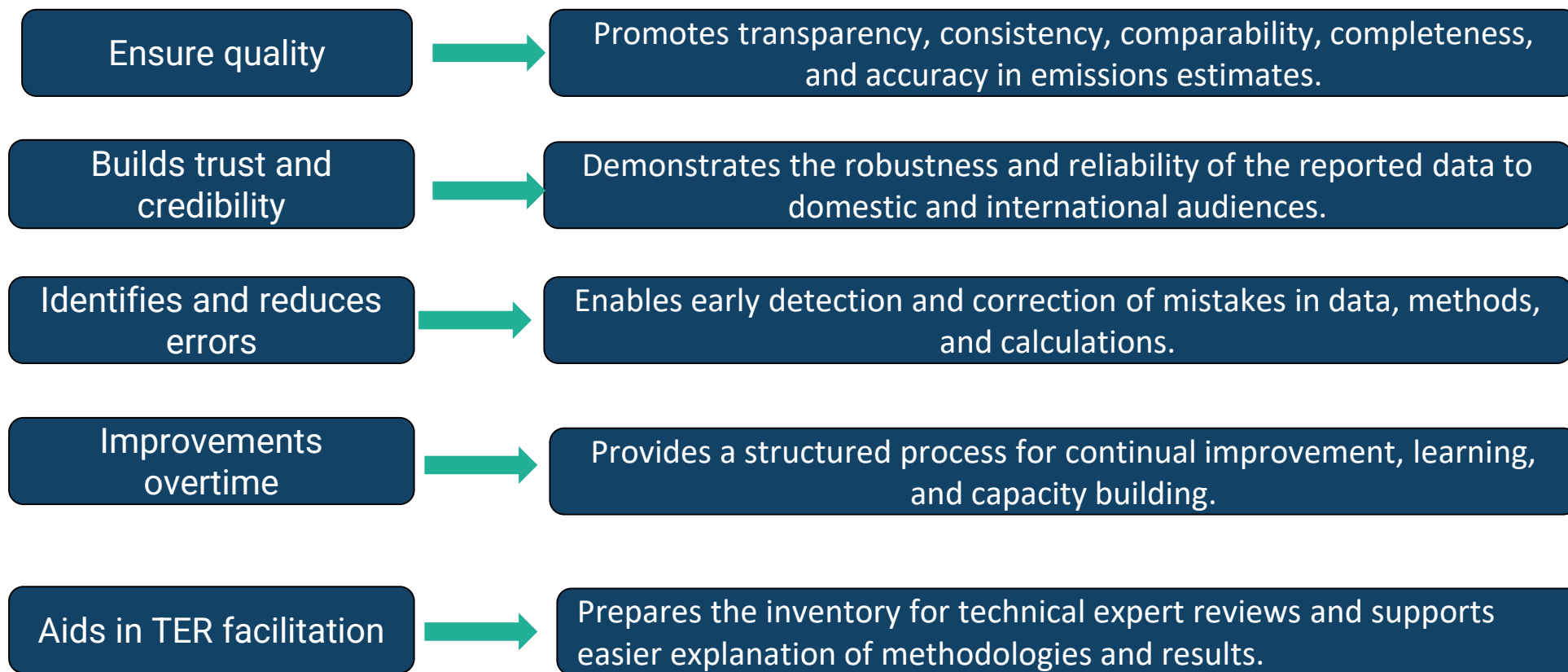
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Why is QA/QC Important



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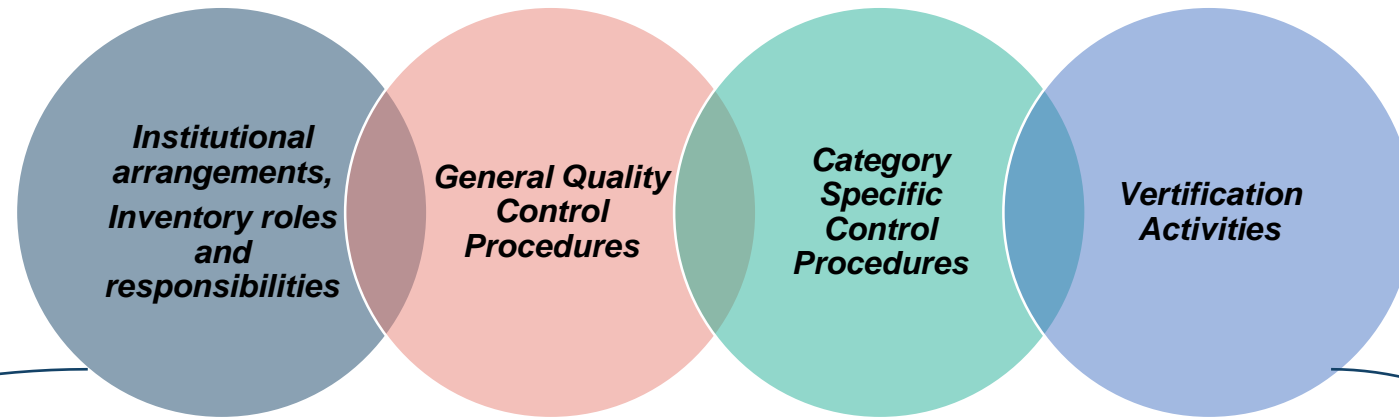


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Main components of QA/QC for Inventory



- Identification of the lead inventory agency.
- Assignment of QA/QC responsibilities across agencies and experts.
- Clear description of coordination mechanisms.

Standardized, routine QC checks on:

- Data input accuracy
- Correct use of units, conversion factors, emissions/removals factors
- Application of methods and equations.
- References and citations for all sources of data.
- Completeness checks (all categories, gases, and years).

- Independent reviews of data, methods, and procedures.
- Third-party evaluations, audits, or peer review mechanisms.
- Timing and scope of reviews (before and/or after inventory submission).

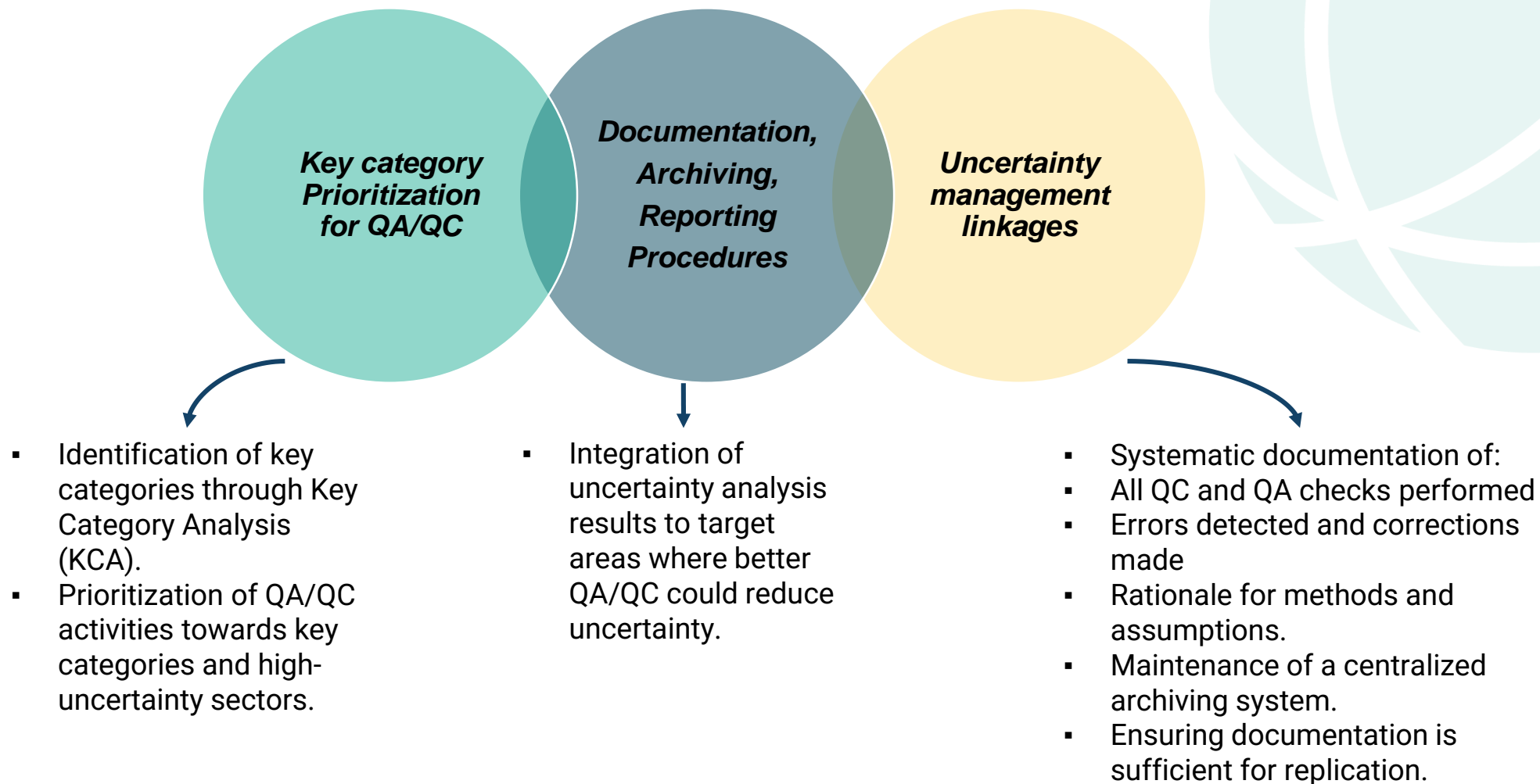
- Cross-checks with:
- External independent data (e.g., energy statistics, forestry reports, transport data).
- Alternative estimation methods.
- Emission trends over time.
- Comparisons with atmospheric measurements if available.
- Reconciliation and explanation of discrepancies.

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Main components of QA/QC for Inventory

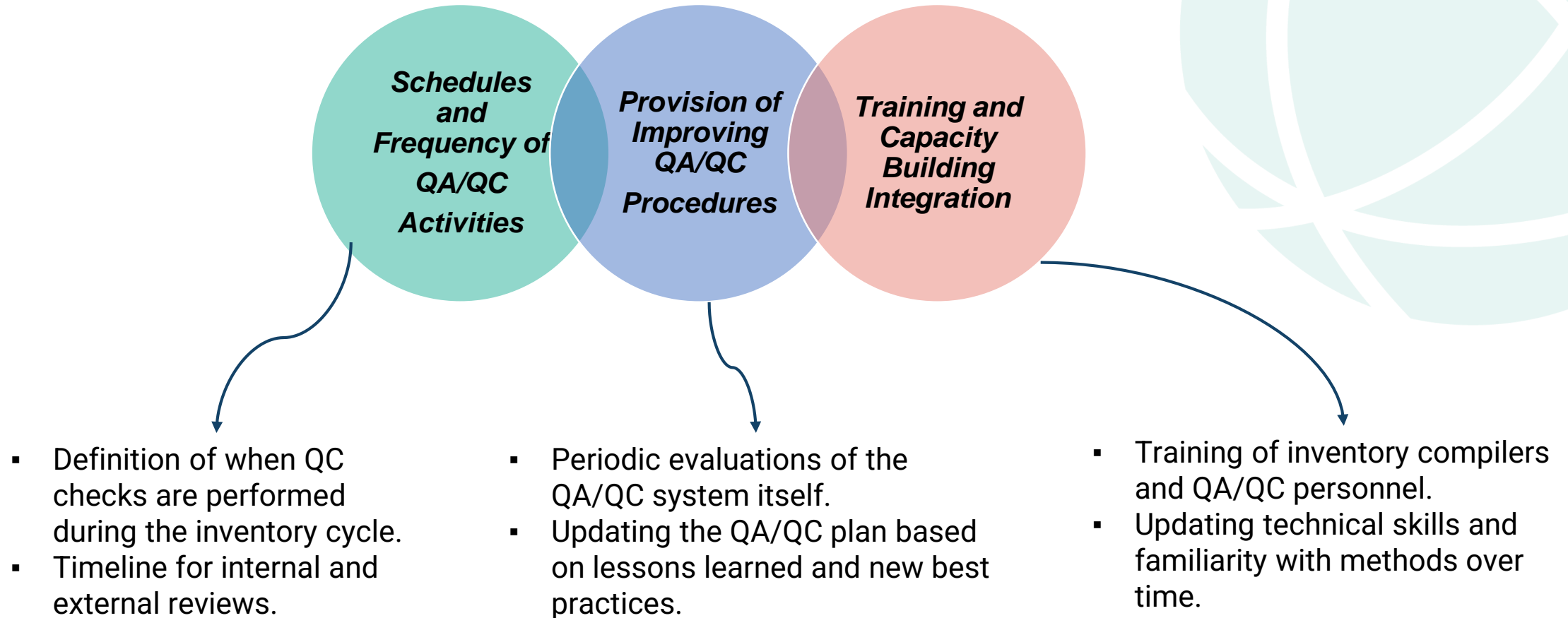


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Main components of QA/QC for Inventory



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QA/QC Plan Content Summary

The plan should, in general, outline the QA/QC and verification activities that will be implemented and the institutional arrangements and responsibilities for implementing those activities.

The plan should include a scheduled time frame for the QA/QC activities that follows inventory preparation from its initial development through to final reporting in any year.

The QA/QC plan is an internal document to organize and implement QA/QC and verification activities that ensure the inventory is fit for purpose and allow for improvement.

Once developed, it can be referenced and used in subsequent inventory preparation, or modified as appropriate (notably, when changes in processes occur or on advice of independent reviewers).

As part of the QA/QC plan, it is good practice to accommodate procedural changes and a feedback of experience. Conclusions from previous reviews need to be used to improve the procedures.

The periodic review and revision of the QA/QC plan is an important element to drive the continued inventory improvement.

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Summary

- Inventories need to be credible and believable: they need to be of high quality.
- Good Practice helps to produce quality inventories.
- Keep in mind the indicators of quality “TCCCA”.
- QA/QC and verification activities should be integral parts of the inventory process.
- Seek to achieve the balance of:
 - QC requirements
 - Requirements for timeliness & cost effectiveness
- Initial planning and good management is essential.
- Limited resources is not a barrier to Greenhouse Gas Inventory compilation.

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Discussion



Q&A

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