INDIA GHG PROGRAM

Promoting profitable, sustainable and competitive businesses.

Managing Inventory Quality & Accounting for GHG Reductions

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Business Goals of GHG Accounting

- Managing GHG risks and identifying reduction opportunities
- Public reporting and participation in voluntary GHG programs
- Complying with mandatory reporting programs
- Participating in GHG markets
- Recognition for early voluntary action

Managing Inventory Quality

- **True and faithful representation** of the GHG emissions
- Ensure **value and credibility** of a company's GHG inventory information
- Identify areas where **investments** will likely lead to the greatest improvement in overall inventory quality
- Prepare high quality data for the benefits of future when emissions may have **monetary value**
- H**igh quality information** to meet internal and external stakeholder demands
- Meet **regulatory** requirements

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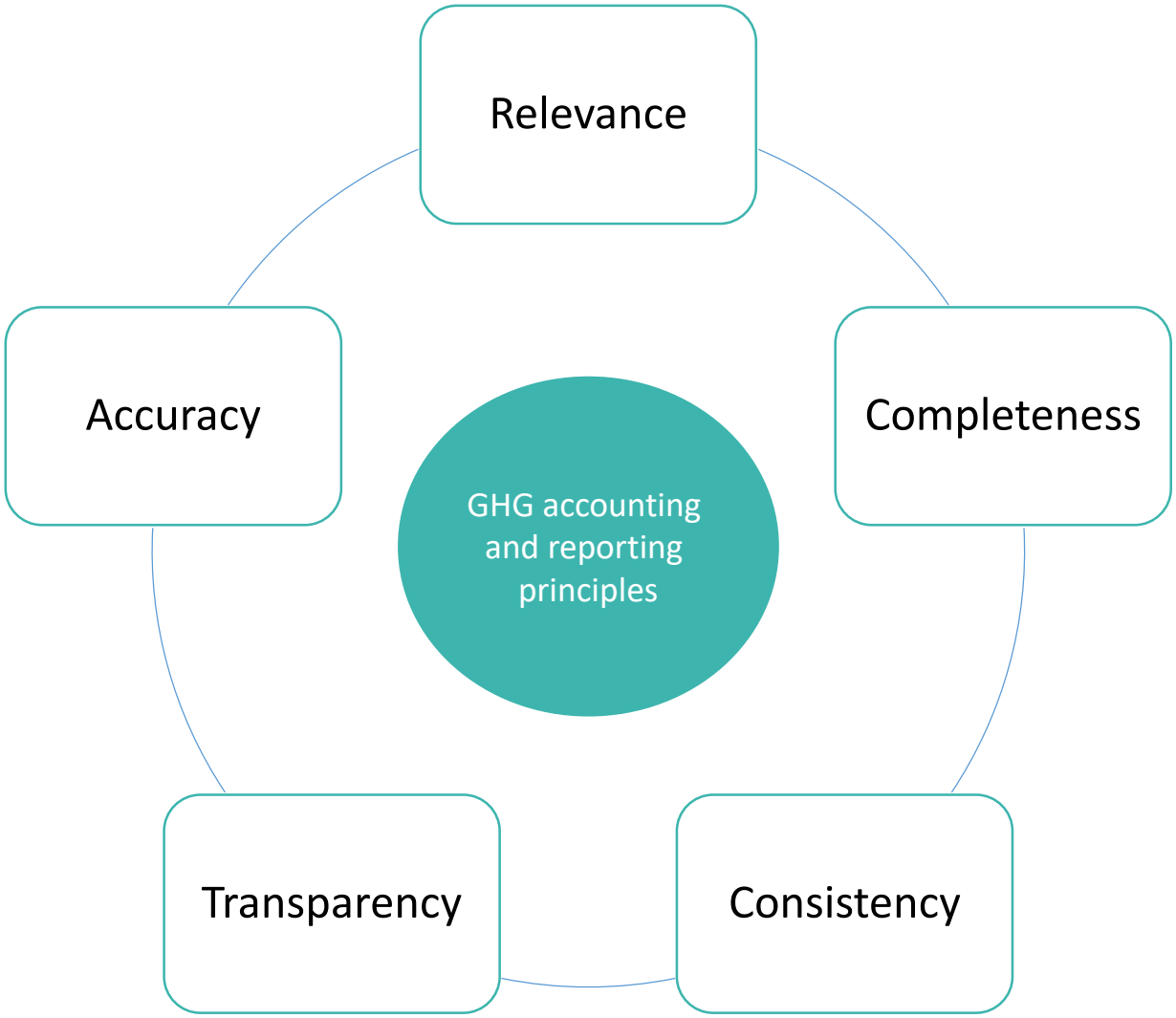
Adherence to the five Accounting Principles

GHG Accounting Principles



GHG Accounting Principles

RELEVANCE

- Appropriately reflects the GHG emissions of the company
- Serves the decision-making needs of users – both internal and external to the company.

COMPLETENESS

- Account for and report on all GHG emission sources and activities within the chosen inventory boundary.
- Disclose and justify any specific exclusions.

CONSISTENCY

- Use consistent methodologies to allow for meaningful comparisons of emissions over time.
- Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.

GHG Accounting Principles

TRANSPARENCY

- Address all relevant issues based on a clear audit trail
- Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used

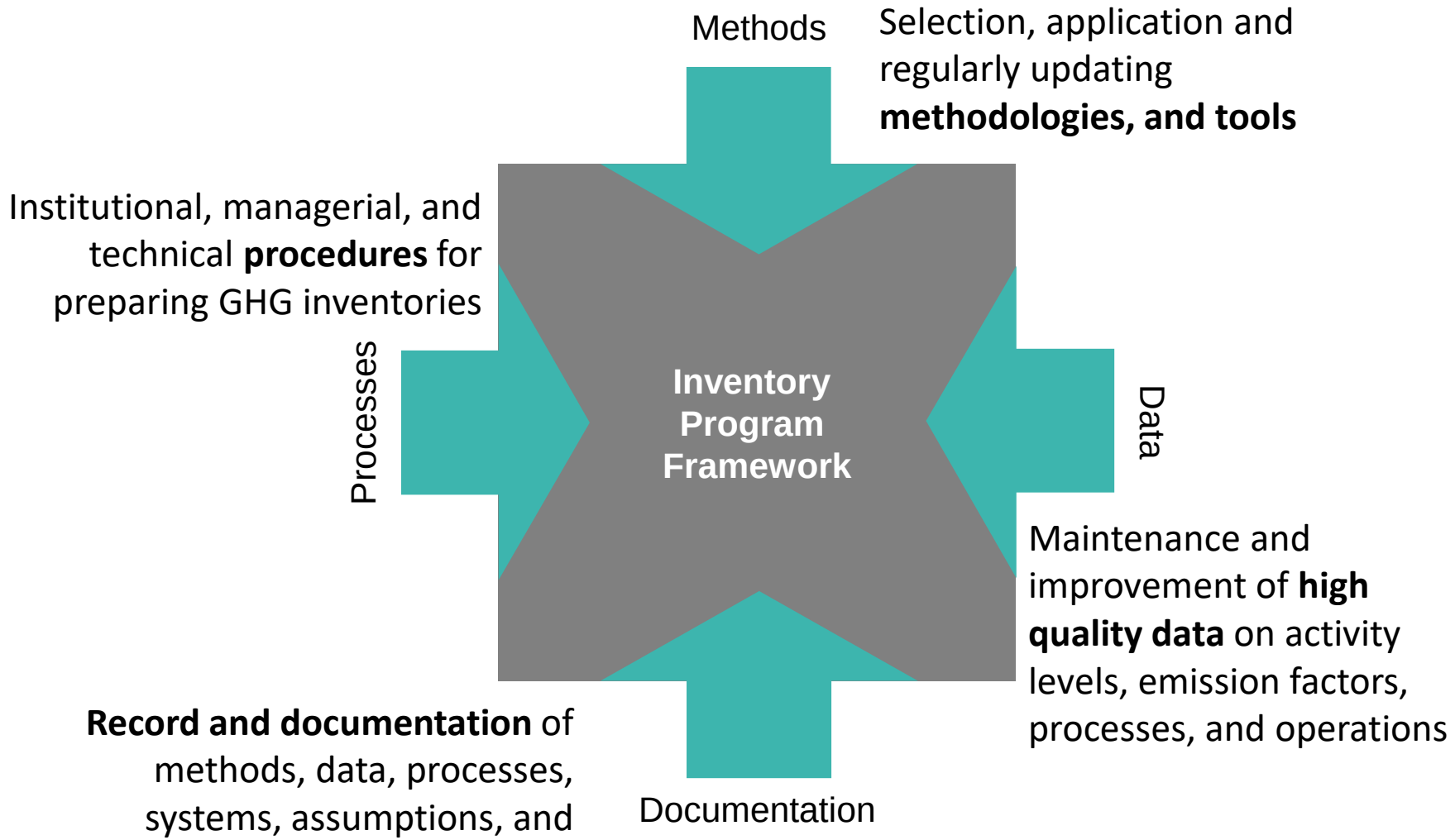
ACCURACY

- Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable.

Managing Inventory Quality

Inventory Program Framework

Inventory Program Framework



Inventory Quality Management System

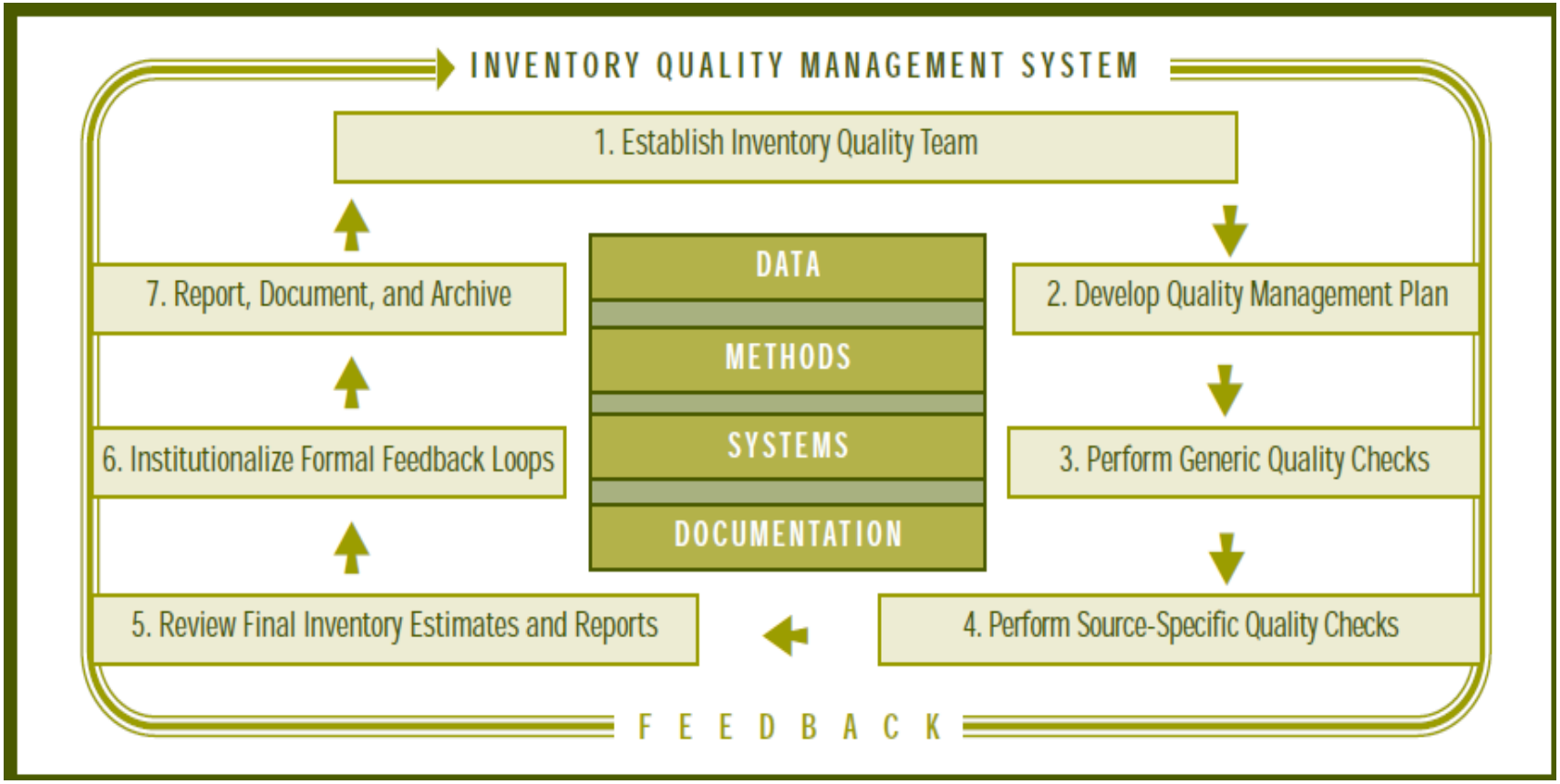
Inventory Quality Management System

Establish an inventory quality team	▪ Responsible for implementing and continually improving quality management system ▪ Coordinate between business units, research institutes, verifiers , consulting firms
Develop a quality management plan	▪ Design steps to implement quality management system ▪ Develop procedures for all organizational levels and inventory processes
Perform generic quality checks	▪ Quality check on data gathering, input, and handling activities ▪ Check the authencity of referred data and document references ▪ Check units, factors and consistencies for emission calculation activities
Perform source-category-specific quality checks	▪ Check for appropriate boundaries, recalculation procedures, adherence to principles ▪ Investigate quality of data sources and best available standards for emission factors ▪ Perform an uncertainty analysis of the data inputs

Inventory Quality Management System

Review final inventory estimates and reports.	▪ Perform internal technical review for engineering, scientific and technical aspects ▪ Receive official corporate approval ▪ Conduct third party expert review of the inventory
Institutionalize formal feedback loops.	▪ Design a formal feedback loops ▪ The feedback from every step of quality management system should be fed to the team ▪ Use the feedback as a device to correct errors and improve the implementation system
Establish reporting, documentation, archiving procedures	▪ Establish record keeping and archiving procedures ▪ Specify what information will be documented for internal purposes ▪ Specify information to be reported to external stakeholders

Inventory Quality Management System



Activity Data Quality

- Develop and establish **data collection procedures;** training of personnel
- Convert fuel consumption data to **energy units** before applying emission factors
- **Emission factor selection** – local >regional>national>international
- Compare **current year data with historical trends** (e.g., changes of over 10 percent from year to year may warrant further investigation)
- **Cross-check with activity data** that is generated for purposes other than preparing a GHG inventory
- Check that **base year recalculation** procedures have been followed consistently and correctly
- Check that **operational and organizational boundary** decisions have been applied correctly and consistently to the collection of activity data
- Extend quality management measures to cover any additional data (sales, production, etc.) used to estimate **emission intensities or other ratios**

Uncertainty Analysis

Uncertainty Analysis

- A way to investigate the quality of inventory data and identify ways to improve data quality

Scientific	Estimation
• Arises when the science of the actual emission and/or removal process is not completely understood • Impossible to consider every factor in order to derive a single emission value. For example; value of global warming potential • Extremely problematic in analyzing and quantifying such uncertainty	• Arises any time GHG emissions are quantified. Two types - • Model uncertainty – Associated with mathematical equation (model) • Parameters uncertainty - Associated with quantifying the parameters used as inputs

Compare across facilities, or for the same facility over time

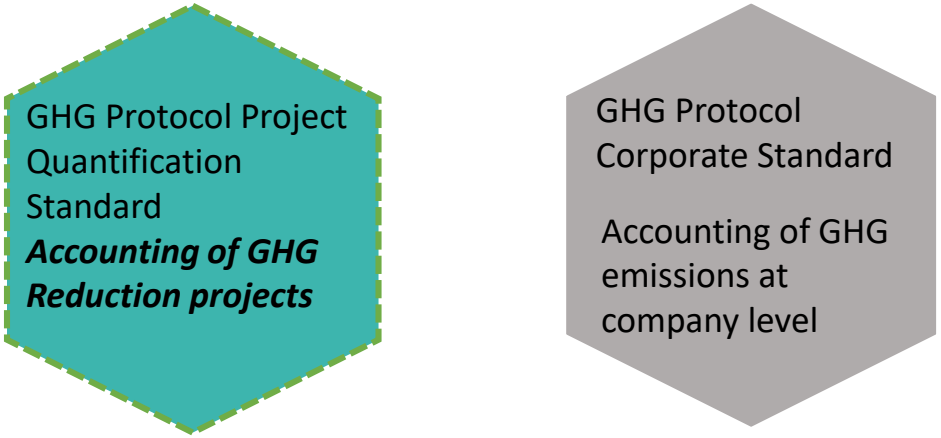
Accounting for GHG Reductions

Accounting for GHG Reductions

- It is important for companies to understand the implications of GHG emissions changes over time
- It may be essential to account the **offsets or credits** that result from GHG reduction projects

Accounting for Corporate Reductions

- Reflected in the inventory boundary
- Need not be reported separately **unless** intended to be sold or traded or used as an offset
- **GHG Protocol Project Quantification Standard is used for accounting the GHG Reduction Projects**



Reduction Projects vs Corporate Emissions

Accounting of GHG Reduction Projects	*Accounting of Corporate GHG emission*
Quantification of GHG reductions from GHG mitigation projects that will be used as offsets	Calculation of reduction in corporate emissions by comparing changes in the company's actual emissions inventory over time relative to a base year
Offsets are calculated relative to a **baseline** and must demonstrate **additionality**	Focus on overall corporate or organizational emissions
Offsets are discrete GHG reductions used to compensate GHG emissions elsewhere to meet a voluntary or mandatory GHG target or cap	Help to identify aggregate GHG risks and provide an opportunity to identify activities having the most effective GHG reductions

THANK YOU

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