



# Verification of Corporate GHGs Inventories

Korea-Japan Workshop on the GHGs Emission Trading Scheme

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# Definition of Verification

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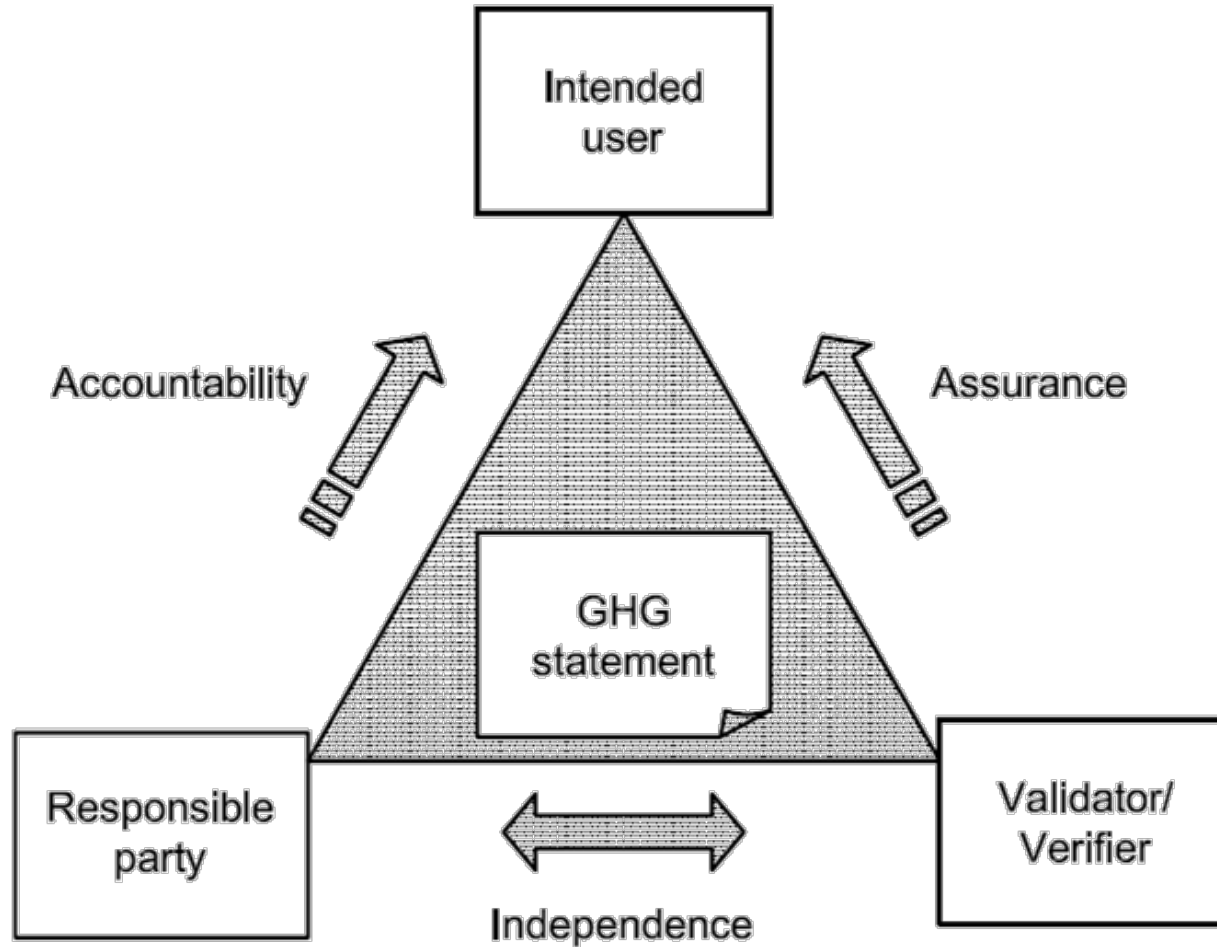
## < ISO 14064-3 >

- Systematic, independent and documented process for the evaluation of a greenhouse gas assertion against agreed verification criteria

## < WRI/WBCSD GHG Protocol >

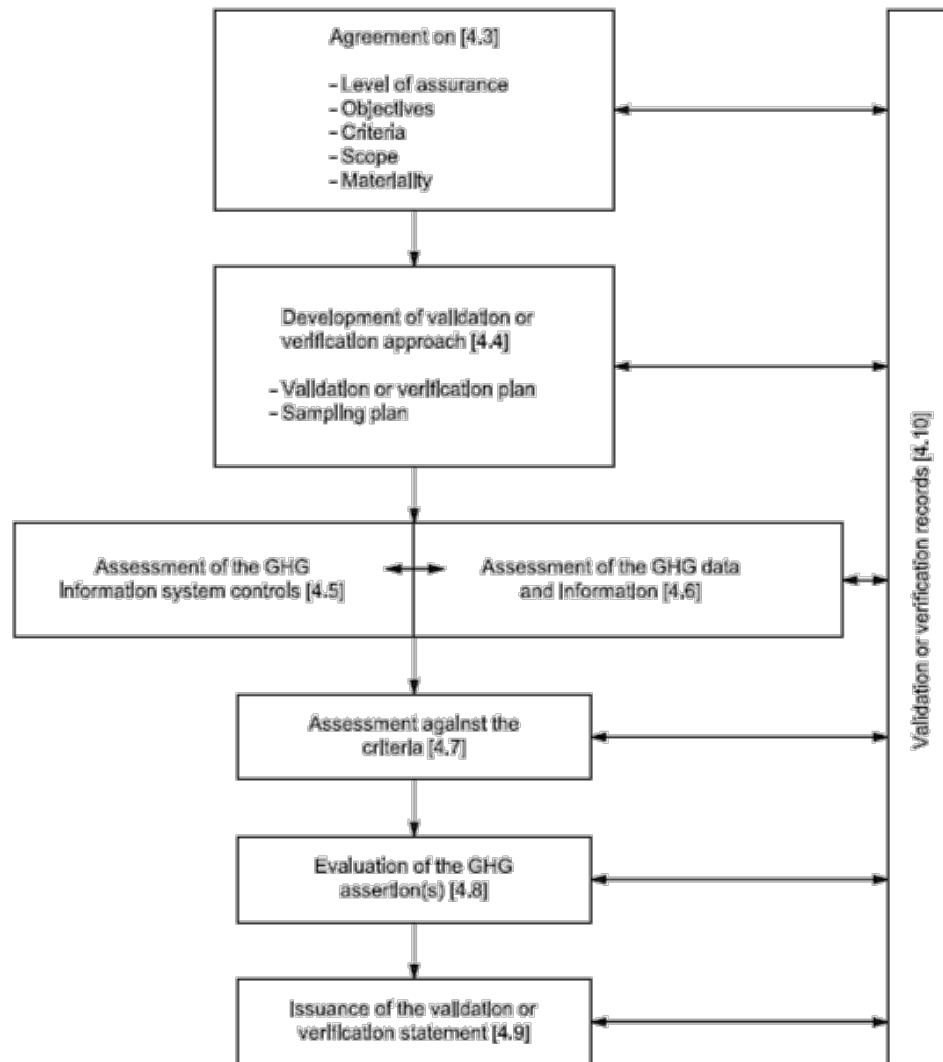
- An objective assessment of the accuracy and completeness of reported GHG information and the conformity of this information to pre-established GHG accounting and reporting principles.

# Role and responsibility



Source: ISO 14064-3

# Verification process



Source: ISO 14064-3

# Purpose of engaging external verification

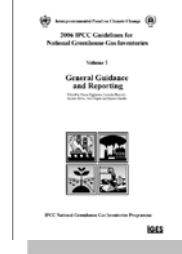
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Business goals which are served by compiling a GHG inventory include:

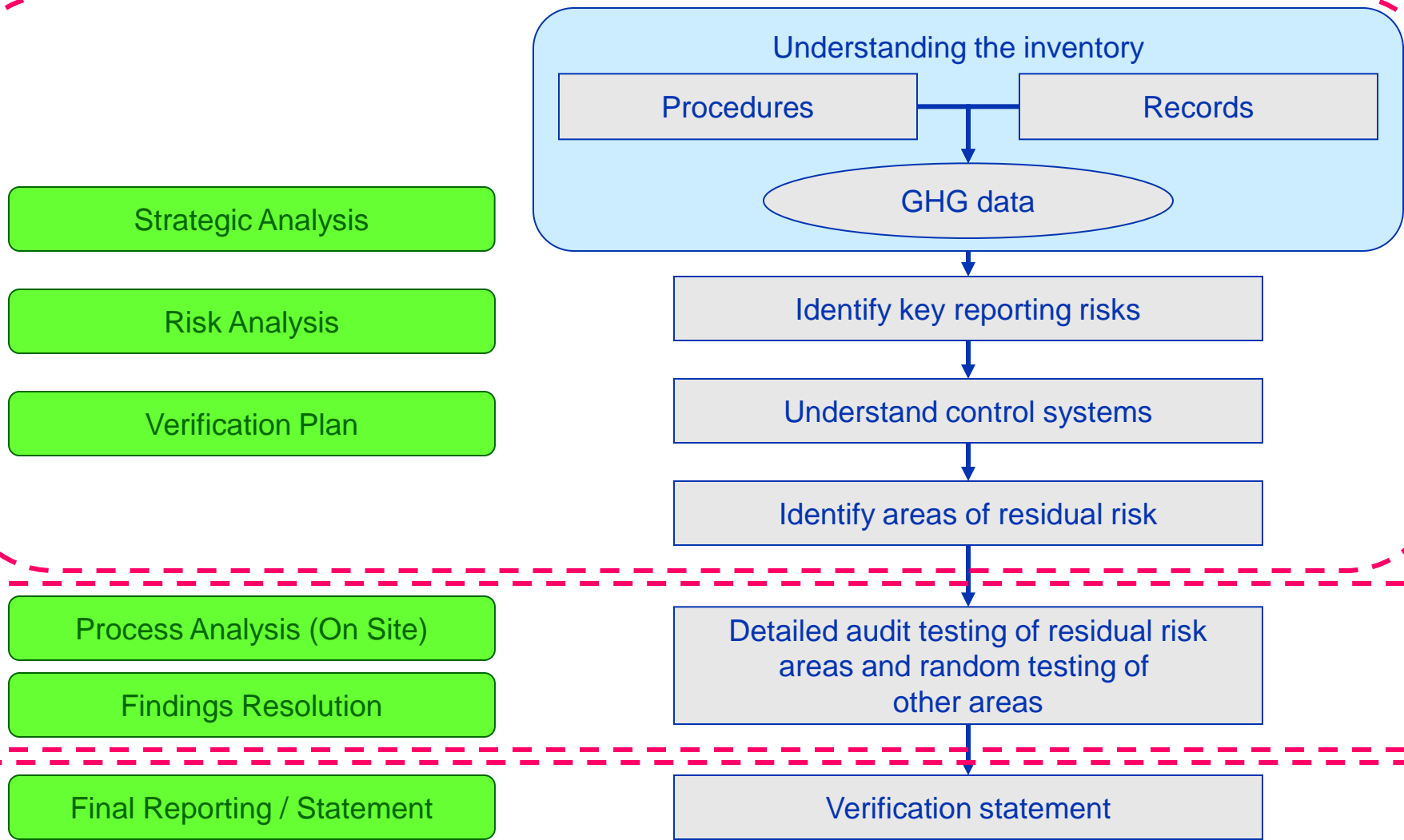
- Managing GHG risks and identifying reduction opportunities
- Public reporting and participating in voluntary GHG program
- Compliance with mandatory reporting program
- Compliance with mandatory 'caps' on GHG emissions or GHG reduction targets
- Participating in GHG markets
- Recognition for voluntary early action
- Product labeling purposes

# Standard & Guidance used

- ISO 14064
- WRI/WBCSD GHG Protocol
- IPCC Guideline
- EU ETS MRG
- KEMCO
  - Guideline for Corporate GHG Emissions Accounting:2006
  - Industry Good practice Guideline for GHG Emissions Accounting:2008
- Industry specific guidelines
  - API (Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry)
  - IPIECA (Petroleum Industry Guideline for Reporting GHG Emissions)
  - WBCSD CSI (CO2 Accounting and Reporting Standard for the Cement Industry)0



# Risk based Verification



# Risk based Verification

## Main Information to be checked:

- Organization's GHG assertion
- Standards or GHG Programs subscribed by the Organization
- Processes in place to gather, collate, transfer, process, correct or adjust, aggregate or disaggregate and store data and GHG information at corporate and installation level
- Procedures in place to ensure the quality, integrity and security of data and information
- Previous verification reports and Statements
- Changes to organizational or operational boundaries since last verification period

## Risk analysis

- The inherent risk of a material discrepancy occurring;
- The risk that the controls of an organization will not prevent or detect a material discrepancy;
- The risk that the verifier will not detect any material discrepancy that has not been corrected by the controls of the organization.

Sampling plan

Verification program

# Risk based Verification

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On site Visit will focus on:

- Data
- Calculations
- Roll-up to corporate level

On site activities collect three types of evidence:

- Physical evidence
- Documentary evidence
- Testimonial evidence is gathered from interviews .

In conducting fieldwork, the verifier is presented with many different types of evidence including:

- Physical examination
- Re-performance
- Documentation and records
- Confirmation
- Analysis
- Enquiry
- Observation

# Corporate GHG Emissions inventory verification

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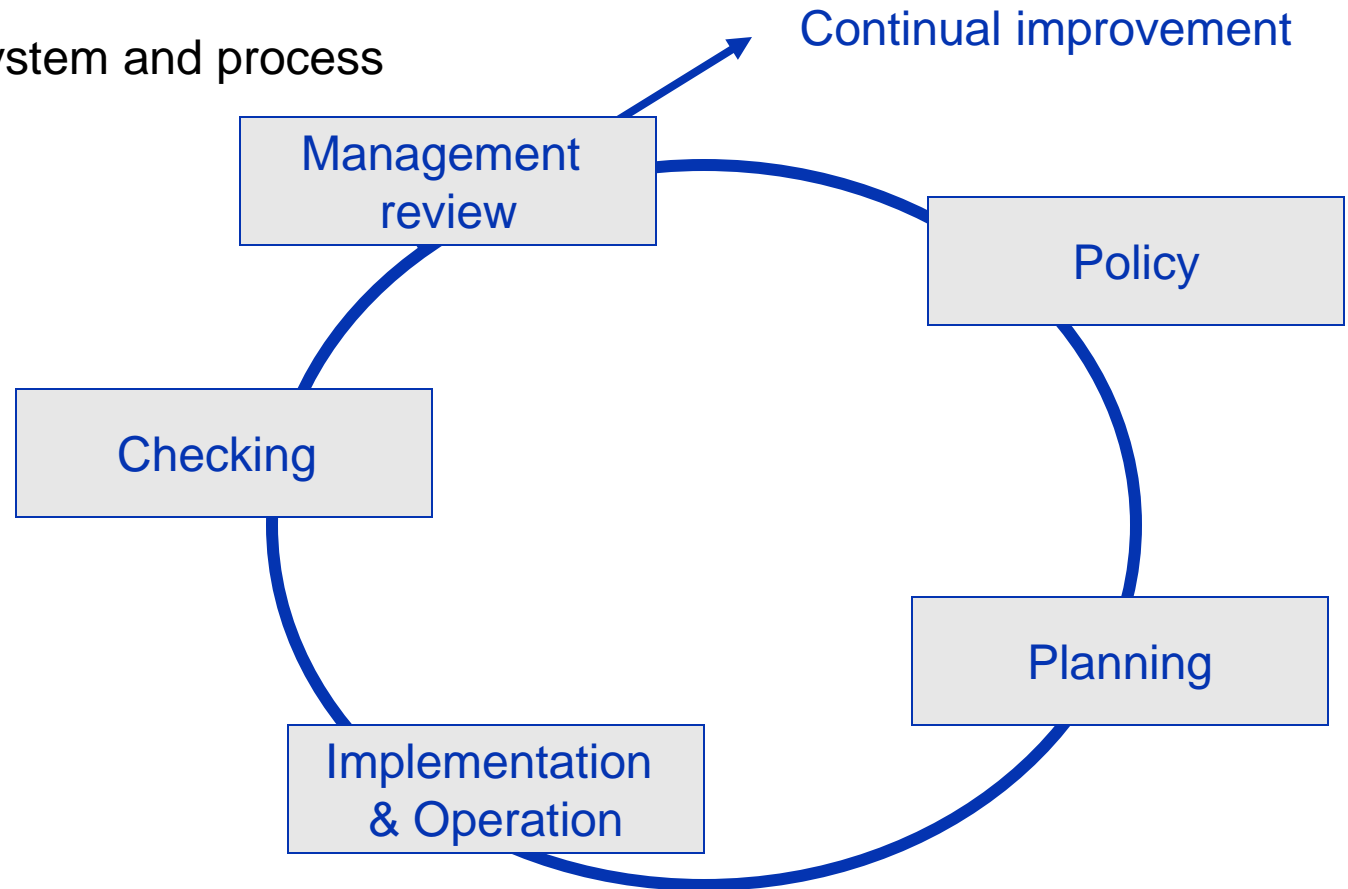
- Verification experience in Korea
  - Power generation (CHP, Coal, LNG, Nuclear, Oil)
  - Oil refinery
  - Petrochemicals
  - Electronics (Electric appliances, TFT-LCD, Semi-conductor, components)
  - Transportation (Railway, Express bus service)
  - Construction
  - Cement
  - Automotive

# Common mistakes found from verification

Organizational boundary	The organizational boundary of the GHG inventory is not clearly defined.
Operational boundary	Wrong application of operational boundary is found.
Base year	The base year is not defined. Description of how to choose the base year is not provided.
Principles of ISO 14064-1	<ul style="list-style-type: none"> <li>▪ Completeness: Not all relevant emissions sources within the chosen inventory boundary are accounted for.</li> <li>▪ Accuracy: Data are not sufficiently precise. Measurements, estimates or calculation are found wrong.</li> <li>▪ Transparency: information on the process, procedures, assumptions of the GHG inventory are not fully disclosed.</li> </ul>
Exclusions	Exclusion of a GHG source is found without the demonstration that the de minimus threshold has not been exceeded.
Quantification methodology	Quantification methodology and emission factors are not found correct.
QA/QC	<ul style="list-style-type: none"> <li>▪ Measuring equipment has not been properly calibrated</li> <li>▪ Records associated with GHG are not properly kept</li> </ul>
Reporting	Reporting is not in accordance with the requirements in ISO 14064 or GHG Protocol

# Lessons learnt

- Remember the purpose and principles
- Integrity of data is important
- Establish robust system and process



# Safeguarding life, property and the environment

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