INTERNATIONAL STANDARD

ISO 14064-2

Second edition
2019-04

Greenhouse gases —

Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements

Gaz à effet de serre —

Partie 2: Spécifications et lignes directrices, au niveau des projets, pour la quantification, la surveillance et la rédaction de rapports sur les réductions d'émissions ou les accroissements de suppressions des gaz à effet de serre

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 7, *Greenhouse gas management and related activities.*

This second edition cancels and replaces the first edition (ISO 14064-2:2006), which has been technically revised. The main changes compared with the previous edition are as follows:

— the concept of additionality and the baseline scenario have been changed;

— text related to the Kyoto mechanism has been deleted.

A list of all parts in the ISO 14064 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 Background

Climate change arising from anthropogenic activity has been identified as one of the greatest challenges facing the world and will continue to affect business and citizens over future decades.

Climate change has implications for both human and natural systems and could lead to significant impacts on resource availability, economic activity and human wellbeing. In response, international, regional, national and local initiatives are being developed and implemented by public and private sectors to mitigate greenhouse gas (GHG) concentrations in the Earth's atmosphere as well as to facilitate adaptation to climate change.

There is a need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge. ISO produces documents that support the transformation of scientific knowledge into tools that will help address climate change.

GHG initiatives on mitigation rely on the quantification, monitoring, reporting and verification of GHG emissions and/or removals.

The ISO 14060 family of standards provides clarity and consistency for quantifying, monitoring, reporting and validating or verifying GHG emissions and removals to support sustainable development through low-carbon economy and to benefit organizations, project proponents and interested parties worldwide. Specifically, the use of the ISO 14060 family of standards:

— enhances the environmental integrity of GHG quantification;

— enhances the credibility, consistency and transparency of GHG quantification, monitoring, reporting, verification and validation;

— facilitates the development and implementation of GHG management strategies and plans;

— facilitates the development and implementation of mitigation actions through emission reductions or removal enhancements;

— facilitates the ability to track performance and progress in the reduction of GHG emissions and/or increase in GHG removals.

Applications of the ISO 14060 family of standards include:

— corporate decisions, such as identifying emission reduction opportunities and increasing profitability by reducing energy consumption;

— carbon risk management, such as the identification and management of risks and opportunities;

— voluntary initiatives, such as participation in voluntary GHG registries or sustainability reporting initiatives;

— GHG markets, such as the buying and selling of GHG allowances or credits;

— regulatory/government GHG programmes, such as credit for early action, agreements or national and local reporting initiatives.

ISO 14064-1 details principles and requirements for designing, developing, managing and reporting organization-level GHG inventories.

It includes requirements for determining GHG emission and removal boundaries, quantifying an organization's GHG emissions and removals, and identifying specific company actions or activities aimed at improving GHG management.

It also includes requirements and guidance on inventory quality management, reporting, internal auditing and the organization's responsibilities in verification activities.

This document details principles and requirements for determining baselines, and monitoring, quantifying and reporting of project emissions. It focuses on GHG projects or project-based activities specifically designed to reduce GHG emissions and/or enhance GHG removals. It provides the basis for GHG projects to be verified and validated.

ISO 14064-3 details requirements for verifying GHG statements related to GHG inventories, GHG projects, and carbon footprints of products. It describes the process for verification or validation, including verification or validation planning, assessment procedures, and the evaluation of organizational, project and product GHG statements.

ISO 14065 defines requirements for bodies that validate and verify GHG statements. Its requirements cover impartiality, competence, communication, validation and verification processes, appeals, complaints, and the management system of validation and verification bodies. It can be used as a basis for accreditation and other forms of recognition in relation to the impartiality, competence, and consistency of validation and verification bodies.

ISO 14066 specifies competence requirements for validation teams and verification teams. It includes principles and specifies competence requirements based on the tasks that validation teams or verification teams have to be able to perform.

ISO 14067 defines the principles, requirements and guidelines for the quantification of carbon footprint of products. The aim of ISO 14067 is to quantify GHG emissions associated with the life cycle stages of a product, beginning with resource extraction and raw material sourcing and extending through the production, use and end-of-life stages of the product.

ISO/TR 14069 assists users in the application of ISO 14064-1, providing guidelines and examples for improving transparency in the quantification of emissions and their reporting. It does not provide additional guidance to ISO 14064-1.

Figure 1 illustrates the relationship among the ISO 14060 family of GHG standards.

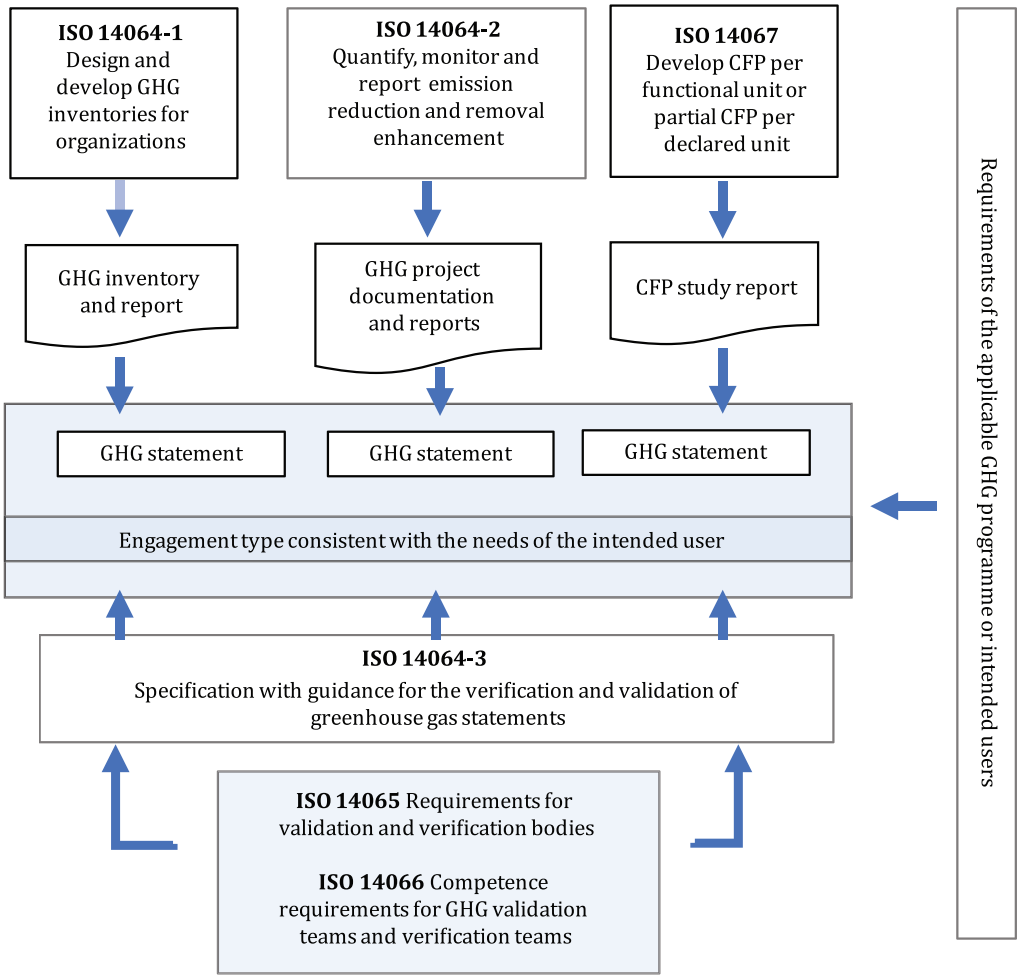


Figure 1 — Relationship among the ISO 14060 family of GHG standards

0.2 Approach of this document

A standardized approach for quantification, monitoring and reporting is needed for GHG projects and any resulting GHG emission reductions and/or removal enhancements, in order that they are comparable among intended users and GHG programmes. Accordingly, this document specifies a general, GHG programme-neutral framework and uses terms and concepts designed to be compatible with other requirements and guidance from relevant GHG policies and programmes, good practice, legislation and standards. Reference [14] provides an example of good practice guidance.

This document contains general requirements for GHG projects and does not prescribe specific criteria and procedures. GHG programmes (e.g. GHG offset programmes) may apply additional requirements on GHG projects in relation to additionality, specific methodologies, project baselines, etc. Although this document leaves specific criteria and requirements related to additionality to individual programmes, it does require that the GHG project should result in emission reductions or removal enhancements in addition to what would have happened in the absence of the project.

This document requires the project proponent to identify and select GHG sources, sinks and reservoirs (SSRs) relevant for the GHG project and to determine the GHG baseline. GHG project emissions/removals and baseline scenario emissions/removals are quantified separately, and the emission reductions

and/or removal enhancements are calculated by comparison of the GHG project emissions/removals with the baseline scenario emissions/removals. It is important to demonstrate that the GHG baseline is consistent with the principles of this document, including conservativeness and accuracy, in order to increase the level of confidence that GHG emission reductions and/or removal enhancements are credible and not over-estimated. Generally, the GHG baseline could be determined based on historical information or setting of alternative scenarios according to the requirements of the intended user/programme. For both the project emissions and the baseline scenario, the quantification, monitoring and reporting of GHG emissions and removals are based on procedures developed by the project proponent or adopted from a GHG programme.

This document does not use the term "project boundary". In order to be compatible with the broadest range of GHG programmes, project boundary is referred to as SSR that are relevant to the project. If any GHG programme requires a specific time period or methodology, these can be compared to the GHG baseline and estimated project emissions. Any discrepancies are recorded and reported in the GHG report.

This document does not specify requirements for verification/validation bodies or verifiers/validators in providing assurance against GHG statements or claims by GHG projects. Such requirements may be specified by the authority of the applicable GHG programme or can be found in ISO 14064-3. The process to recognize certified GHG emission reductions or removal enhancements as GHG units, credits or offsets is an extension of the GHG project cycle. The certification and crediting process, which may be under the authority of a GHG programme and may vary among GHG programmes, is also not included in the specifications of this document.

Annex A provides guidance on the use of this document.

0.3 Significance of the terms "explain" and "justify" in this document

Some clauses require users of this document to explain and justify the use of certain approaches or decisions taken.

Explanation generally includes:

a) how approaches were used or decisions taken;

b) why approaches were chosen or decisions made.

Justification has two more criteria:

c) explain why alternative approaches were not chosen;

d) provide supporting data or analysis.

Greenhouse gases —

Part 2:
Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements

1 Scope

This document specifies principles and requirements and provides guidance at the project level for the quantification, monitoring and reporting of activities intended to cause greenhouse gas (GHG) emission reductions or removal enhancements. It includes requirements for planning a GHG project, identifying and selecting GHG sources, sinks and reservoirs (SSRs) relevant to the project and baseline scenario, monitoring, quantifying, documenting and reporting GHG project performance and managing data quality.

The ISO 14060 family of standards is GHG programme neutral. If a GHG programme is applicable, the requirements of that GHG programme are additional to the requirements of the ISO 14060 family of standards.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Terms relating to greenhouse gases

3.1.1
greenhouse gas
GHG
gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds

Note 1 to entry: GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6).

Note 2 to entry: Other examples of GHGs are provided in the latest Intergovernmental Panel on Climate Change (IPCC) Assessment Report[11].

3.1.2
greenhouse gas source
GHG source
process that releases a *GHG* (3.1.1) into the atmosphere

3.1.3
greenhouse gas sink
GHG sink
process that removes a *GHG* (3.1.1) from the atmosphere

3.1.4
greenhouse gas reservoir
GHG reservoir
component, other than the atmosphere, that has the capacity to accumulate *GHGs* (3.1.1), and to store and release them

3.1.5
greenhouse gas emission
GHG emission
release of a *GHG* (3.1.1) into the atmosphere

3.1.6
greenhouse gas removal
GHG removal
withdrawal of a *GHG* (3.1.1) from the atmosphere by *GHG sinks* (3.1.3)

3.1.7
greenhouse gas emission reduction
GHG emission reduction
quantified decrease in *GHG emissions* (3.1.5) between a *baseline scenario* (3.2.6) and the *GHG project* (3.2.3)

3.1.8
greenhouse gas removal enhancement
GHG removal enhancement
quantified increase in *GHG removals* (3.1.6) between a *baseline scenario* (3.2.6) and the *GHG project* (3.2.3)

3.1.9
greenhouse gas emission factor
GHG emission factor
coefficient relating GHG activity data with the *GHG emission* (3.1.5)

3.1.10
greenhouse gas removal factor
GHG removal factor
coefficient relating GHG activity data with the *GHG removal* (3.1.6)

3.1.11
affected greenhouse gas source, sink and reservoir
affected GHG SSR
GHG source (3.1.2), *GHG sink* (3.1.3) and *GHG reservoir* (3.1.4) influenced by a *GHG project* (3.2.3), through changes in market demand or supply for associated products or services, or through physical displacement

Note 1 to entry: An affected GHG SSR is generally off the project site.

Note 2 to entry: *GHG emission reductions* (3.1.7) or *GHG removal enhancements* (3.1.8) offset by affected GHG SSRs are often referred to as leakage.

3.1.12
controlled greenhouse gas source, sink and reservoir
controlled GHG SSR
GHG source (3.1.2), *GHG sink* (3.1.3) and *GHG reservoir* (3.1.4) where the operation is under the direction and influence of the *GHG project proponent* (3.3.2) through financial, policy, management or other instruments

Note 1 to entry: A controlled GHG SSR is generally on the GHG project site.

3.1.13
related greenhouse gas source, sink and reservoir
related GHG SSR
GHG source (3.1.2), *GHG sink* (3.1.3) and *GHG reservoir* (3.1.4) that has material or energy flows into, out of, or within the *GHG project* (3.2.3)

Note 1 to entry: A related GHG SSR is generally upstream or downstream from the GHG project, and can be either on or off the GHG project site.

Note 2 to entry: A related GHG SSR also can include activities related to design, construction and decommissioning of a GHG project.

Note 3 to entry: "Material flow" is defined in ISO 14051:2011, 3.14.

Note 4 to entry: "Energy flow" is defined in ISO 14040:2006, 3.13.

3.1.14
global warming potential
GWP
index, based on radiative properties of *GHGs* (3.1.1), measuring the radiative forcing following a pulse emission of a unit mass of a given GHG in the present-day atmosphere integrated over a chosen time horizon, relative to that of carbon dioxide (CO_2)

Note 1 to entry: A list of GHGs with their recognized GWPs is provided in the latest Intergovernmental Panel on Climate Change (IPCC) Assessment Report[11].

3.1.15
carbon dioxide equivalent
CO_2e
unit for comparing the radiative forcing of a *GHG* (3.1.1) to that of carbon dioxide

3.2 Terms relating to the GHG quantification process

3.2.1
greenhouse gas statement
GHG statement
DEPRECATED: GHG assertion
factual and objective declaration that provides the subject matter for the *verification* (3.4.2) or *validation* (3.4.3)

Note 1 to entry: The GHG statement could be presented at a point in time or could cover a period of time.

Note 2 to entry: The GHG statement provided by the responsible party should be clearly identifiable, capable of consistent evaluation or measurement against suitable criteria by a *verifier* (3.4.4) or *validator* (3.4.5).

Note 3 to entry: The GHG statement could be provided in *a GHG report* (3.2.4), *GHG project* (3.2.3) plan or CFP study report. "CFP study report" is defined in ISO 14067:2018, 3.1.1.5.

3.2.2
greenhouse gas information system
GHG information system
policies, processes and procedures to establish, manage, maintain and record *GHG* (3.1.1) information

Note 1 to entry: Maintain includes the amendment, removal and addition of GHG information.

3.2.3
greenhouse gas project
GHG project
activity or activities that alter the conditions of a *GHG baseline* (3.2.5) and which cause *GHG emission reductions* (3.1.7) or *GHG removal enhancements* (3.1.8)

Note 1 to entry: Activity can include technologies used to alter the conditions of the GHG baseline.

3.2.4
greenhouse gas report
GHG report
standalone document intended to communicate an organization's or *GHG project's* (3.2.3) GHG-related information to its *intended users* (3.3.1)

Note 1 to entry: A GHG report can include a *GHG statement* (3.2.1).

3.2.5
greenhouse gas baseline
GHG baseline
quantitative reference(s) of *GHG emissions* (3.1.5) and/or *GHG removals* (3.1.6) that would have occurred in the absence of a *GHG project* (3.2.3) and provides the *baseline scenario* (3.2.6) for comparison with project GHG emissions and/or GHG removals

3.2.6
baseline scenario
hypothetical reference case that best represents the conditions most likely to occur in the absence of a proposed *GHG project* (3.2.3)

3.2.7
monitoring
continuous or periodic assessment of *GHG emissions* (3.1.5), *GHG removals* (3.1.6) or other GHG-related data

3.2.8
uncertainty
parameter associated with the result of quantification that characterizes the dispersion of the values that could be reasonably attributed to the quantified amount

Note 1 to entry: Uncertainty information typically specifies quantitative estimates of the likely dispersion of values and a qualitative description of the likely causes of the dispersion and can be included in a greenhouse gas report.

3.3 Terms relating to organizations and interested parties

3.3.1
intended user
individual or organization identified by those reporting GHG-related information as being the one who relies on that information to make decisions

Note 1 to entry: The intended user can be the client, the responsible party, *GHG programme* (3.3.4) administrators, regulators, the financial community or other affected *interested parties* (3.3.3), such as local communities, government departments or non-governmental organizations.

3.3.2
greenhouse gas project proponent
GHG project proponent
individual or organization that has overall control and responsibility for a *GHG project* (3.2.3)

Note 1 to entry: The term “project proponent" is also used synonymously in the text.

3.3.3
interested party
person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity

EXAMPLE Person or organization that is affected by or interested in the development or implementation of a *GHG project* (3.2.3).

3.3.4
greenhouse gas programme
GHG programme
voluntary or mandatory international, national or subnational system or scheme that registers, accounts or manages *GHG emissions* (3.1.5), *GHG removals* (3.1.6), *GHG emission reductions* (3.1.7) or *GHG removal enhancements* (3.1.8) outside the organization or *GHG project* (3.2.3)

3.4 Terms relating to verification and validation

3.4.1
level of assurance
degree of confidence in the *GHG statement* (3.2.1)

Note 1 to entry: Assurance is provided on historical information.

3.4.2
verification
process for evaluating a statement of historical data and information to determine if the statement is materially correct and conforms to criteria

3.4.3
validation
process for evaluating the reasonableness of the assumptions, limitations and methods that support a statement about the outcome of future activities

3.4.4
verifier
competent and impartial person with responsibility for performing and reporting on a *verification* (3.4.2)

3.4.5
validator
competent and impartial person with responsibility for performing and reporting on a *validation* (3.4.3)

4 Principles

4.1 General

The application of principles is fundamental to ensure that GHG-related information is a true and fair account. The principles are the basis for, and will guide the application of, the requirements in this document.

4.2 Relevance

Select the GHG SSRs, data and methodologies appropriate to the needs of the intended user.

4.3 Completeness

Include all relevant GHG emissions and removals. Include all relevant information to support criteria and procedures.

4.4 Consistency

Enable meaningful comparisons in GHG-related information.

4.5 Accuracy

Reduce bias and uncertainties as far as is practical.

4.6 Transparency

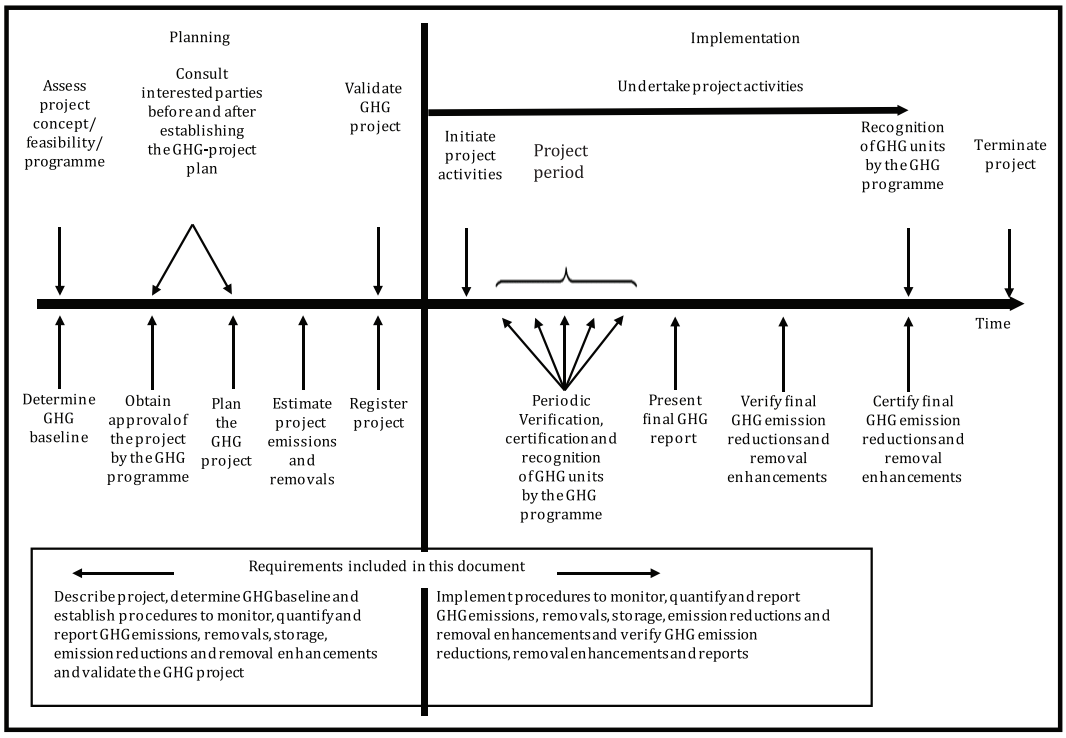
Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence.

4.7 Conservativeness

Use conservative assumptions, values and procedures to ensure that GHG emission reductions or removal enhancements are not over-estimated.

5 Introduction to GHG projects

The GHG project cycle is generally characterized by two main phases: a planning phase and an implementation phase. GHG project cycle steps vary depending upon the project's scale and specific circumstances, including applicable legislation, methods, GHG programmes or standards. Whereas this document specifies requirements for GHG project quantification, monitoring and reporting, a typical GHG project cycle may include additional elements, as shown in Figure 2.



NOTE Not all GHG project/programmes will require all the elements included in this figure.

Figure 2 — A typical GHG project cycle

The GHG project proponent may initially identify the project concept, design the project and evaluate its feasibility, consult interested parties and assess GHG programme eligibility requirements. As appropriate, the project proponent may seek written approval of project acceptance by the applicable GHG programme or responsible government institution.

For the planning phase, this document specifies requirements for establishing and documenting a GHG project. In planning the GHG project, the project proponent:

— describes the project;

— identifies and selects GHG SSRs relevant for the project;

— determines the baseline scenario and identifies and selects GHG SSRs relevant to it;

— develops procedures to quantify, monitor and report GHG emissions, removals, emission reductions and removal enhancements.

NOTE GHG programmes can require official registration, validation and public distribution of a GHG project plan before project implementation.

For the implementation phase, this document specifies requirements for selecting and applying criteria and procedures for:

— regular data quality management;

— monitoring;

— quantification and reporting of GHG emissions and removals in the project and GHG baseline;

— quantification and reporting of GHG emission reductions and removal enhancements.

Implementation of a GHG project may be initiated by a specific activity (e.g. an action to install, implement, engage or otherwise begin operations) and may end with a specific termination activity (e.g. an action to complete, close, decommission or otherwise formally end the project). The reporting period and frequency may vary based on the specific requirements of the GHG project and/or GHG programme. Based on actual data and information monitored and collected during project implementation, quantified GHG emissions, removals, emission reductions and removal enhancements may be verified.

Figure 3 illustrates the linkage between the planning and implementation phases of a project to the requirements of this document. In the application of this document, the user is encouraged to consider all requirements holistically and iteratively rather than in a linear stepwise approach.

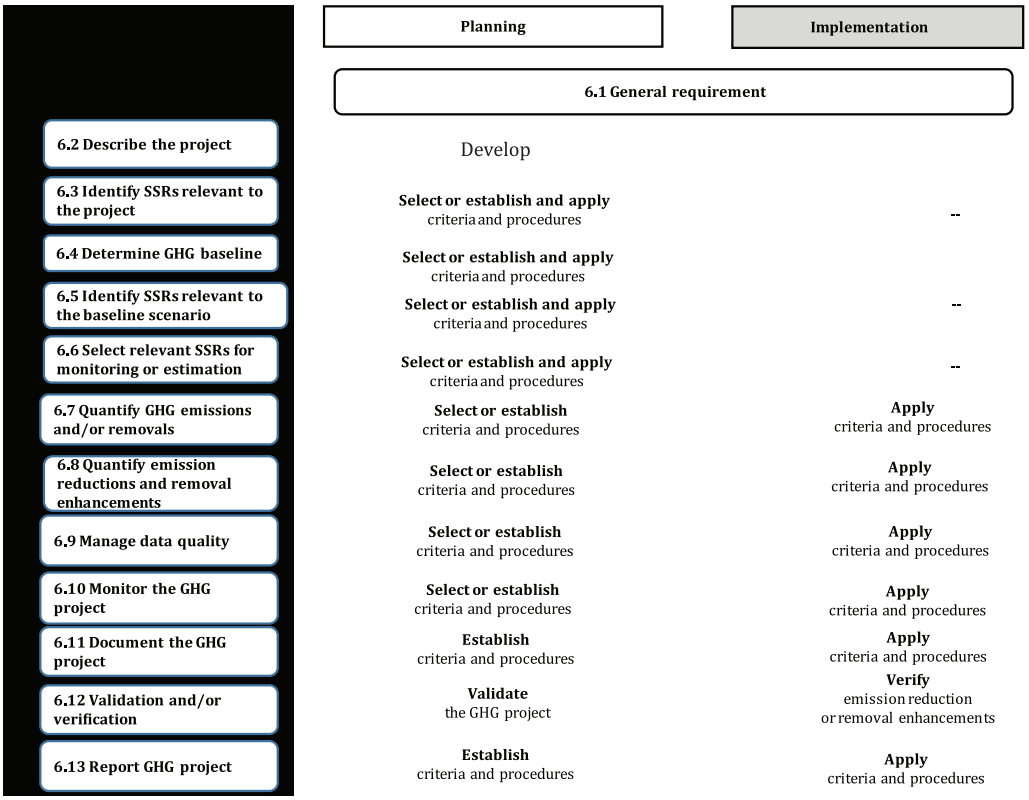


Figure 3 — Typical presentation of linkages between planning and implementation requirements

6 Requirements for GHG projects

6.1 General requirements

The project proponent shall identify, consider and use relevant criteria and procedures for every stage of the GHG project cycle where these are available, as shown in Figure 3. Where criteria and procedures are not available, the project proponent shall use relevant current good practice guidance. The project

proponent shall select and apply established criteria and procedures from a recognized origin, if available.

In cases where the project proponent uses criteria and procedures or relevant current good practice guidance that derive from a recognized origin, the project proponent shall document and justify any departure from those criteria and procedures.

In cases where criteria and procedures or relevant current good practice guidance from more than one recognized origin exists, the project proponent shall justify the reason for using the selected recognized origin.

Where there is no relevant criteria, procedures or current good practice guidance from a recognized origin, the project proponent shall establish, justify and apply criteria and procedures to fulfil the requirements in this document.

If the project proponent subscribes to a GHG programme, the project proponent shall ensure that the GHG project conforms to the requirements of the GHG programme.

NOTE Good practice guidance can come from a recognized origin, such as industry practices and associations, similar projects, benchmarking, GHG programme methods or others that are fit for purpose.

6.2 Describing the project

The project proponent shall describe the project and its context in a GHG project plan that includes the following:

a) project title, purpose(s) and objective(s);

b) type of GHG project, including descriptions of how the project will achieve GHG emission reductions and/or removal enhancements and specific GHGs targeted;

c) project location, including organizational, geographic and physical location information, allowing for the unique identification and delineation of the specific extent of the project;

d) conditions prior to project initiation;

e) project technologies, products, services and the expected level of activity;

f) aggregated GHG emission reductions and removal enhancements, stated in a unit of measure required by the intended user for reporting, e.g. tonnes of CO_2e, likely to occur from the GHG project;

g) identification of risks that could substantially affect the project's GHG emission reductions or removal enhancements and, if applicable, any measures to manage those risks;

h) roles and responsibilities, including contact information of the project proponent and other project participants, including the intended users, and roles and contact information for relevant regulator(s) or administrators of the GHG programme to which the GHG project subscribes;

i) a summary environmental impact assessment when such an assessment related to the project or GHG programme is required by applicable legislation or regulation;

j) relevant outcomes from interested party consultations and mechanisms for ongoing communication, if applicable;

k) a chronological plan or actual dates and justification for the following:

   1) the date of initiating project activities;

   2) GHG baseline time period;

   3) date of termination of the project;

4) frequency of monitoring and reporting and the project period, including relevant project activities in each step of the GHG project cycle, as applicable;

5) frequency of verification and validation, as applicable.

NOTE These parameters can be specified by a GHG programme.

l) if applicable, required information relevant for the eligibility of a GHG project under a GHG programme, including legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and temporal information;

In order for a project to be eligible for a GHG programme, the proponent shall adhere to all eligibility requirements of the GHG programme or intended user.

When adding new activities or changes to an existing project, the proponent shall review and update, as necessary, the GHG baseline(s) and the project emissions and removals affected by the new activities or changes, including the requirements of the GHG programme or intended user, as applicable.

If the project was validated (see 6.12), the proponent shall explain how the new activities or changes remain consistent with the validated GHG baseline. If the changes are not consistent with the validated GHG baseline, the project proponent shall have the project re-validated.

6.3 Identifying GHG SSRs relevant to the project

The project proponent shall select or establish criteria and procedures for identifying and assessing GHG SSRs controlled, related to or affected by the project.

Based on the selected or established criteria and procedures, the project proponent shall identify GHG SSRs relevant to the project as being:

a) controlled by the project proponent;

b) related to the GHG project; or

c) affected by the GHG project.

A.3.2 provides guidance on identifying GHG SSRs relevant to the project.

6.4 Determining the GHG baseline

The project proponent shall select or establish criteria and procedures for determining the GHG baseline considering the following:

a) the project description, including identified GHG SSRs (see 6.3);

b) existing and alternative project types, activities and technologies providing equivalent type and level of activity of products or services to the project;

c) data availability, reliability and limitations;

d) other relevant information concerning present or future conditions, such as legislative, technical, economic, socio-cultural, environmental, geographic, site-specific and temporal assumptions or projections.

The project proponent shall demonstrate functional equivalence in the type and level of activity of products or services provided between the project and the baseline scenario and shall explain, as appropriate, any significant differences between the project and the baseline scenario.

The project proponent shall select or establish, describe and apply criteria and procedures for identifying and justifying the GHG baseline.

The justification of the GHG baseline should take into account likely future behaviour of the baseline scenario (GHG SSRs) to meet the conservativeness principle (4.7).

NOTE There are different ways of determining a GHG baseline, including based on past and current data. A GHG programme can prescribe other approaches to determine the GHG baseline, such as a performance standard (e.g. benchmark or multi-project) baseline. A GHG baseline can be static (remain the same during the project period) or dynamic (change over time during the project period).

In developing the GHG baseline, the project proponent shall select and justify the assumptions, values and procedures that ensure GHG emissions reductions or removal enhancements are not over-estimated.

The project proponent shall select or establish, justify and apply criteria and procedures for demonstrating that the project results in GHG emissions reductions or removal enhancements that are additional to what would occur in comparison to the determined GHG baseline.

A.3.4 provides guidance on determining the GHG baseline.

6.5 Identifying GHG SSRs relevant to the baseline scenario

In identifying GHG SSRs relevant to the baseline scenario, the project proponent shall:

a) consider criteria and procedures used for identifying the GHG SSR relevant to the project;

b) if necessary, explain and apply additional criteria for identifying relevant GHG SSRs;

c) compare the project's identified GHG SSR with those identified in the baseline scenario.

6.6 Selecting GHG SSRs for monitoring or estimating GHG emissions and removals

The project proponent shall select or establish criteria and procedures for selecting GHG SSRs for either regular monitoring or estimation based on appropriate and reliable data.

The project proponent shall provide justification for not selecting any GHG SSR identified in the GHG baseline for regular monitoring.

NOTE Figure A.3 shows a possible framework for identifying and selecting GHG SSRs for regular monitoring or estimating GHG emissions or removals.

6.7 Quantifying GHG emissions and/or removals

The project proponent shall select or establish criteria and procedures or methodologies for quantifying GHG emissions and/or removals for selected GHG SSRs (see 6.6). Based on selected or established criteria and procedures or methodologies, the project proponent shall quantify GHG emissions and/or removals separately for:

a) each relevant GHG for each GHG SSR relevant for the project;

b) each GHG SSR relevant for the baseline scenario.

Where aggregated GHG emissions reported in CO_2e are used instead of differentiated GHG emissions, the level of aggregation to which SSRs are identified shall meet the needs of the intended user and be consistent with the quantification method used.

The project proponent shall establish and apply criteria, procedures and/or methodologies to assess the risk of a reversal of a GHG emission reduction or removal enhancement (i.e. permanence of GHG emission reduction or removal enhancement).

If applicable, the project proponent shall select or develop GHG emissions or removal factors that:

— are derived from a recognized origin;

— are appropriate for the GHG source or sink concerned;

— are current at the time of quantification;

— take account of the quantification uncertainty and are calculated in a manner intended to yield accurate and reproducible results;

— are consistent with the intended use of the GHG report.

6.8 Quantifying GHG emission reductions and removal enhancements

The project proponent shall select or establish criteria and procedures or methodologies for quantifying GHG emission reductions and removal enhancements during project implementation and operation.

The project proponent shall apply the criteria and methodologies selected or established to quantify GHG emission reductions and removal enhancements for the GHG project. GHG emission reductions or removal enhancements shall be quantified as the difference between the GHG emissions and/or removals from GHG SSRs relevant for the project and those relevant for the baseline scenario.

The project proponent shall quantify, as appropriate, GHG emission reductions and removal enhancements separately for each relevant GHG and its corresponding GHG SSRs for the project and the baseline scenario.

If applicable, the project proponent shall convert the quantity of each type of GHG to units of CO_2e using appropriate GWPs.

6.9 Managing data quality

The project proponent shall establish and apply quality management procedures to manage data and information, including the assessment of uncertainty, relevant to the project and baseline scenario.

The project proponent should reduce, as far as is practical, uncertainties related to the quantification of GHG emission reductions or removal enhancements.

NOTE The project proponent can apply the principles of ISO 9001 and ISO 14033 for managing data quality.

6.10 Monitoring the GHG project

The project proponent shall establish and maintain a monitoring plan that includes procedures for measuring or otherwise obtaining, recording, compiling and analysing data and information important for quantifying and reporting GHG emissions and/or removals relevant for the project and baseline scenario (i.e. GHG information system). The monitoring plan shall include the following, as applicable:

a) purpose of monitoring;

b) list of parameters being measured and monitored;

c) types of data and information to be reported, including units of measurement;

d) origin of the data;

e) monitoring methodologies, including estimation, modelling, measurement, calculation approaches and uncertainty;

f) monitoring frequency, considering the needs of intended users;

g) monitoring roles and responsibilities, including procedures for authorizing, approving and documenting changes to recorded data;

h) controls that include internal data check for input, transformation and output, and procedures for corrective actions;

i) GHG information management systems, including the location and retention of stored data and data management that includes a procedure for transfers of data between different forms of systems or documentation.

Where measurement and monitoring equipment is used, the project proponent shall ensure that calibrated or verified monitoring and measurement equipment is used and maintained, as appropriate.

The project proponent shall apply GHG monitoring criteria and procedures in accordance with the monitoring plan.

All data and information related to the monitoring of the GHG project should be recorded and documented.

6.11 Documenting the GHG project

The project proponent shall have documentation that demonstrates conformity of the GHG project with the requirements of this document. This documentation shall be consistent with verification and validation needs (see 6.12).

6.12 Verification and/or validation of the GHG project

If the project proponent requests verification and/or validation of the GHG project, the project proponent shall ensure that the verification or validation conforms to the principles and requirements of ISO 14064-3.

6.13 Reporting the GHG project

The project proponent shall prepare and make available to intended users a GHG report. The GHG report shall:

— identify the intended use and intended user of the GHG report;

— use a format and include content consistent with the needs of the intended user.

If the project proponent makes a GHG statement to the public claiming conformity with this document, the project proponent shall make the following available to the public:

a) an independent third-party verification or validation statement, prepared in accordance with ISO 14064-3; or

b) a GHG report that includes as a minimum:

   1) the name of the project proponent;

   2) a brief description of the GHG project, including size, location, duration and types of activities;

   3) a GHG statement(s), including a statement of GHG emission reductions and removal enhancements stated in units of CO_2e, e.g. tonnes of CO_2e;

   4) a statement describing whether the GHG statement has been verified and/or validated, including the type of verification or validation and level of assurance achieved;

   5) a list of all relevant GHG sources and sinks controlled by the project, as well as those related to or affected by the project, including the defined criteria for their selection for inclusion in quantification;

   6) a statement of the aggregate GHG emissions and/or removals by GHG SSRs for the GHG project that are controlled by the project proponent, stated in unit of CO_2e, e.g. tonnes of CO_2e, for the relevant time period (e.g. annual, cumulative to date, total);

7) a statement of the aggregate GHG emissions and/or removals by GHG SSRs for the GHG baseline, stated in units of CO_2e, e.g. tonnes of CO_2e, for the relevant time period;

8) a description of the GHG baseline and demonstration that the GHG emission reductions or removal enhancements are not over-estimated;

9) a general description of the criteria, procedures or good practice guidance used as a basis for the calculation of project GHG emission reductions and removal enhancements;

10) a statement on uncertainty, how it affects the GHG statement and how it has been addressed to minimize misrepresentation;

11) the date of the report and the time period covered;

12) as applicable, an assessment of permanence;

13) an evidence of the appointment of the authorized representative on behalf of the project proponent, if different from the proponent;

14) if applicable, the GHG programme(s) to which the GHG project subscribes;

15) if required by intended users, changes to the project or monitoring system from the project plan and assessment of its conformity to criteria, applicability of methodologies and any other requirements.

Annex A
(informative)

Guidance on the use of this document

A.1 Background

This annex provides guidance on the use of this document. It does not describe in detail how to implement the requirements.

This document is intended for use in undertaking and evaluating GHG projects during planning, implementation or post-implementation phases.

In order to have broad and flexible application to different GHG project types and scales, this document outlines principles and specifies process requirements rather than prescribing specific criteria and procedures. Additional requirements, criteria and guidance from relevant GHG programmes, good practice, legislation and standards are important for the credible application of this document. Additional guidance, programme requirements and good practice will come from many sources, and are continually evolving (see Figure A.1).

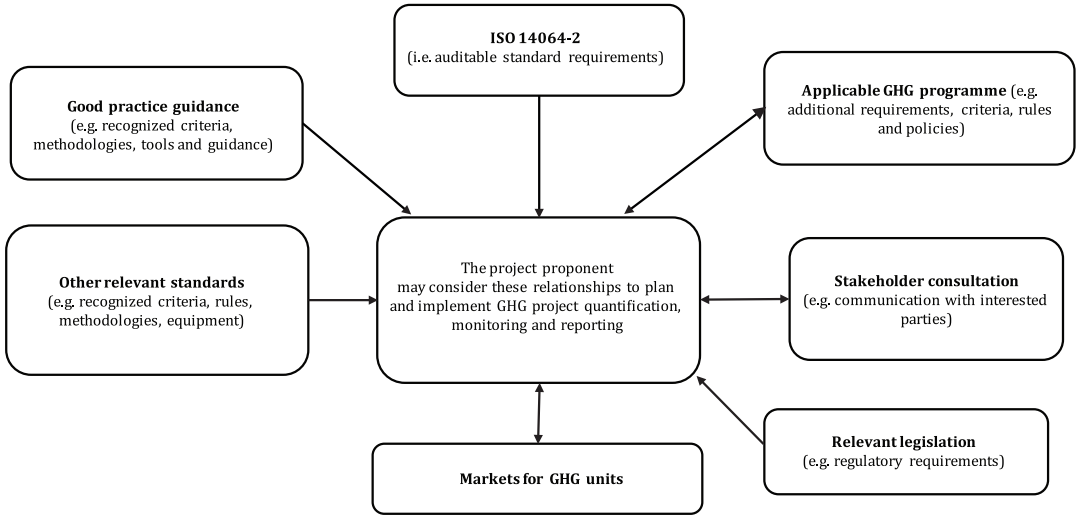


Figure A.1 — Framework for the use of this document

This document is GHG programme neutral but is designed for use with internal or external voluntary or mandatory GHG programmes. Many GHG programmes are currently being carried out with reference to this document. Some GHG programmes have additional requirements to meet their own purposes.

This document does not require the verification or validation of GHG projects directly, nor does it address crediting from GHG projects. As a result, project proponents should consider additional guidance from GHG programme requirements. When used in conjunction with specific GHG programmes, project proponents, verifiers and validators should comply with any additional requirements.

Figure A.2 illustrates the use in ISO 14064 series of several definitions related to key carbon cycles, such as:

— GHG source;

— GHG sink;

— GHG reservoir;

— GHG emission;

— GHG removal.

A.2 Principles

A.2.1 General

The principles in this document are intended to ensure a fair representation and a credible and balanced account of GHG emission reductions and removal enhancements from projects. Principles are used to assist in the general interpretation of requirements. In particular, the principles are intended to apply when judgement and discretion are called for in fulfilling requirements. The principles form the basis for justifications and explanations required in this document, and users should make reference to the relevant principles and how they have been applied. The application of each principle will vary according to the nature of the judgement involved. The principles should be applied holistically, with each principle considered within the context of the overall intent of particular clauses. This document includes principles common to ISO 14064-1 and unique to this document.

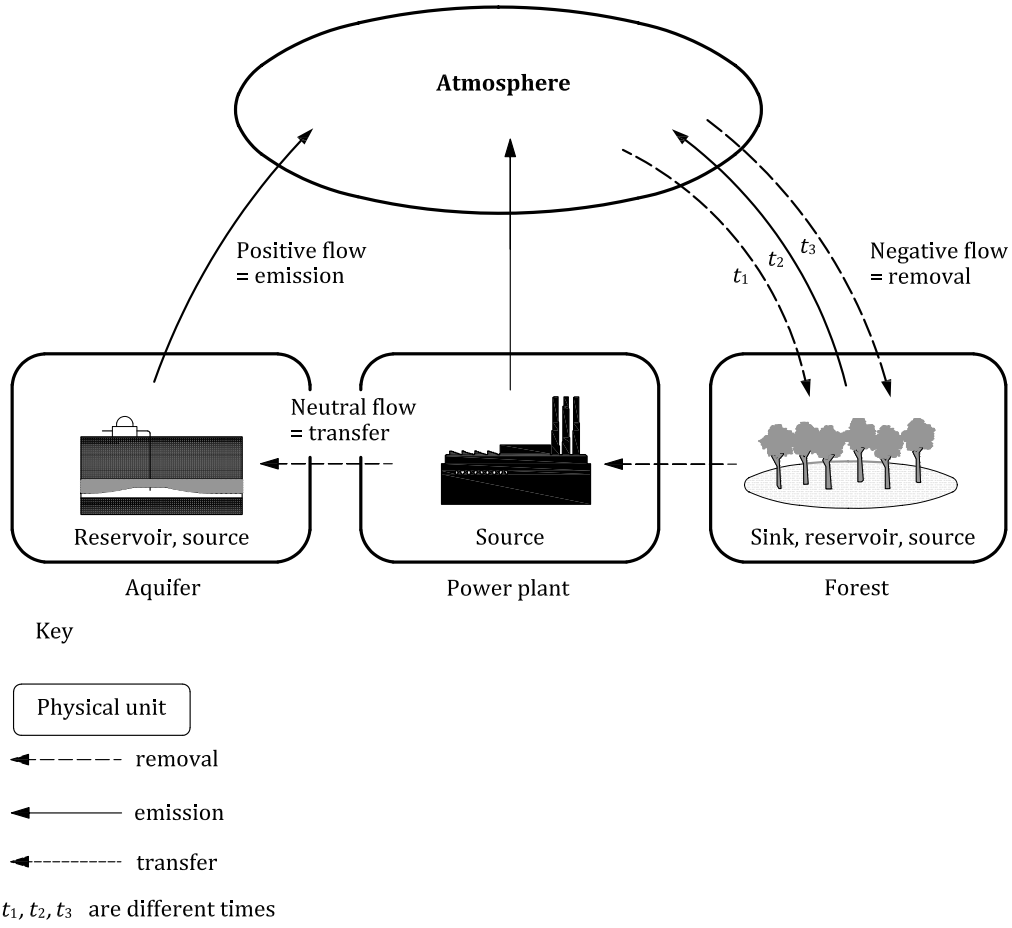


Figure A.2 — Interaction and application of several definitions related to key carbon cycles used in the ISO 14064 series

A.2.2 Relevance

Relevance is important in the context of selection of:

— GHG SSRs of the GHG project and the baseline scenario;

— procedures to quantify, monitor and estimate GHG SSRs;

— potential baseline scenario(s).

Relevance is assessed against the influence on the decisions or conclusions of intended users of the information and may be implemented by defining and justifying qualitative and/or quantitative criteria. For example, minimum thresholds may be used to justify the aggregation of minor GHG sources or in the choice of quantification methods or the number of data points monitored. Implementing the principle of relevance can help reduce the cost of GHG projects. However, users of the information still require the ability to make decisions with reasonable assurance as to the integrity of quantification and reporting.

A.2.3 Completeness

Completeness is usually satisfied by:

— identifying all GHG SSRs controlled, related to or affected by the GHG project and corresponding baseline scenario;

— estimating GHG SSRs not regularly monitored;

— ensuring that all information relevant to intended users appears in reported GHG data or information in a manner consistent with the established project and baseline scenario, time period and objectives of reporting;

— determining representative baseline scenario within the relevant geographic areas and time periods.

Where comparable individual GHG SSRs cannot be identified in the GHG baseline, appropriate default values and assumptions are used. In the absence of such direct evidence, expert judgement is often required to provide information and guidance in establishing and justifying elements of the GHG project plan and GHG reports. This may include the appropriate use of models and conversion factors, as well as an estimation of uncertainty. The same will also often apply to the GHG baseline estimations for GHG removal projects.

A.2.4 Consistency

Consistency is usually satisfied by:

— using uniform procedures among projects;

— using uniform procedures to determine the GHG baseline and to quantify the project emissions;

— using functionally equivalent units (i.e. the same level of service is provided by the GHG baseline and the project);

— applying tests and assumptions equally across potential baseline scenario(s);

— ensuring the equivalent application of expert judgement, internally and externally, over time and among projects.

The principle of consistency is not intended to prevent the use of procedures or methodologies that enhance the accuracy of GHG data and information. However, any change in procedures and methods should be transparently documented and justified.

A.2.5 Accuracy

Accuracy is usually satisfied by avoiding or eliminating bias from sources within estimations, and through describing and improving precision and uncertainties as far as is practical.

Project proponents should pursue accuracy insofar as possible, considering the hypothetical nature of baseline scenario and the cost of monitoring of some types of GHG emissions and removals. Where the hypothetical nature and high cost make accuracy difficult, conservativeness serves as a moderator to accuracy in order to maintain the credibility of project GHG quantification.

Accuracy and conservativeness are interrelated principles. Once a project proponent has reduced uncertainty to the extent practicable, the value chosen within that range should result in a conservative estimate of the GHG emission or removal.

A.2.6 Transparency

Transparency relates to the degree to which information is seen as being reported in an open, clear, factual, neutral and coherent manner based on documentation (e.g. an audit trail). Information is

recorded, compiled and analysed in such a way that will enable internal reviewers and external intended users to attest to its credibility.

Transparency usually requires the following:

— clearly and explicitly stating and documenting all assumptions;

— clearly referencing background material;

— stating all calculations and methods;

— clearly identifying all changes in documentation;

— compiling and documenting information in a manner that enables independent verification and validation;

— documenting the application of principles [e.g. in selecting the baseline scenario(s)];

— documenting the explanation and/or justification (e.g. choice of procedures, methods, parameters, data sources, key factors);

— documenting the justification of selected criteria;

— documenting assumptions, references and methods such that another party can reproduce reported data;

— documenting any external factors to the project that may affect the decisions of intended users.

A.2.7 Conservativeness

Conservativeness is usually satisfied by:

— the appropriate choice of the path of technological development and the rate of implementation in the relevant geographic area and time periods in the absence of the project;

— taking into account the impact of the project on the path of development and rate of implementation in the relevant geographic area and time periods;

— the appropriate choice of parameters affecting the project's GHG emissions, removals and SSRs;

— providing reliable results maintained over a range of probable assumptions.

The principle of conservativeness is applied when highly uncertain parameters or data sources are relied upon for the determination and the quantification of the GHG baseline, and for project GHG emissions and removals. In particular, the conservativeness of the GHG baseline is established with reference to the choice of approaches, assumptions, methods, parameters, data sources and key factors so that GHG baseline emissions and removals are more likely to be under-estimated rather than over-estimated, and that reliable results are maintained over a range of probable assumptions. However, using the conservativeness principle does not always imply the use of the most conservative choice of assumptions or methods. Explanations of how assumptions and choices are conservative should be provided in project documentation. The implementation of the conservativeness principle is frequently a matter of balance (e.g. between accuracy, relevance and cost-effectiveness). When less accurate methods are chosen, more conservative assumptions and methods should be applied.

A.3 Requirements for GHG projects

A.3.1 General requirements

Relevant standards and legislation can apply to projects as well as good practice. The eligibility of the project can be determined by prior approval of authorities and compliance with standards and legislation. The project proponent may have to complete an environmental and social impact

assessment, demonstrate a contribution to sustainable development, and plan the project to be consistent with national environment and development priorities and strategies.

This document does not differentiate between types and scales of projects. It may be applied to all projects irrespective of size and scale because it provides flexibility in the implementation of the requirements by referring to good practice guidance.

A.3.2 Identifying GHG SSRs relevant to the project

A.3.2.1 General

The project proponent is expected to identify all relevant GHG sources and sinks controlled by the project, as well as those related to or affected by the project. However, the quantification of GHG emissions and removals by the GHG project generally does not involve all of the GHG sources and sinks identified. Therefore, criteria to identify and select GHG sources and sinks relevant to, but not impacted by, the project proponent are necessary.

To ensure an appropriate comparison of the project and baseline scenario (to calculate GHG emission reductions and removal enhancements), the services, products or function generally include a quantitative measure for the emissions, and demonstrate functional equivalence.

The project proponent is also accountable for changes in GHG emissions and removals by GHG sources and sinks affected by the project through activity shifting or market transformation, often referred to as leakage. For example, a project that increases energy efficiency can also reduce energy prices and result in an increase in energy demand (i.e. “rebound effect”).

Figure A.3 illustrates an example of a decision tree that provides a procedure to assist project proponents to consider GHG SSRs to fulfil, and document conformity with, some of the requirements of this document. This framework may be used to identify and select GHG SSRs for quantification by means of direct measurement or estimation approaches. The criteria used in the procedure by the project proponent should be consistent with the GHG project principles, good practice guidance, policies and rules of applicable GHG programmes, as applicable. The project proponent should justify the choice of criteria used in the procedure, as well as the procedure being used (whether the following example is used or another approach is used). For example, the criteria may consider a balance between practicality and cost-effectiveness with the GHG project principles. The project proponent should also consider good practice guidance for how to answer some of the decision criteria (e.g. when considering if a GHG SSR is related by flows into or out of the project or baseline scenario). In such cases, the project proponent may consider good practice guidance that provides established approaches related to the level of aggregation to represent SSRs (e.g. each boiler or the entire heating plant as the level of detail), the criteria used (e.g. mass fraction or material input, such as a co-solvent or catalyst represents more than 5 % of inputs on a mass basis) or percentage of costs (e.g. a product/output represents 10 % of project value and therefore should be considered). Ultimately, the decision whether or not to monitor or estimate a SSR directly may be based on the monitoring effort (costs) versus the significance of the impact on GHG reductions.

Exclusion of GHG sources from quantification may also be justified when comparisons of the project and baseline scenario sources show no change from the baseline scenario to the project. In the case of GHG removal enhancement projects, a GHG source and/or sink may be excluded from quantification requirements if the project proponent can demonstrate that the GHG source and/or sink is not a net source of GHG emissions/removals over the project period.

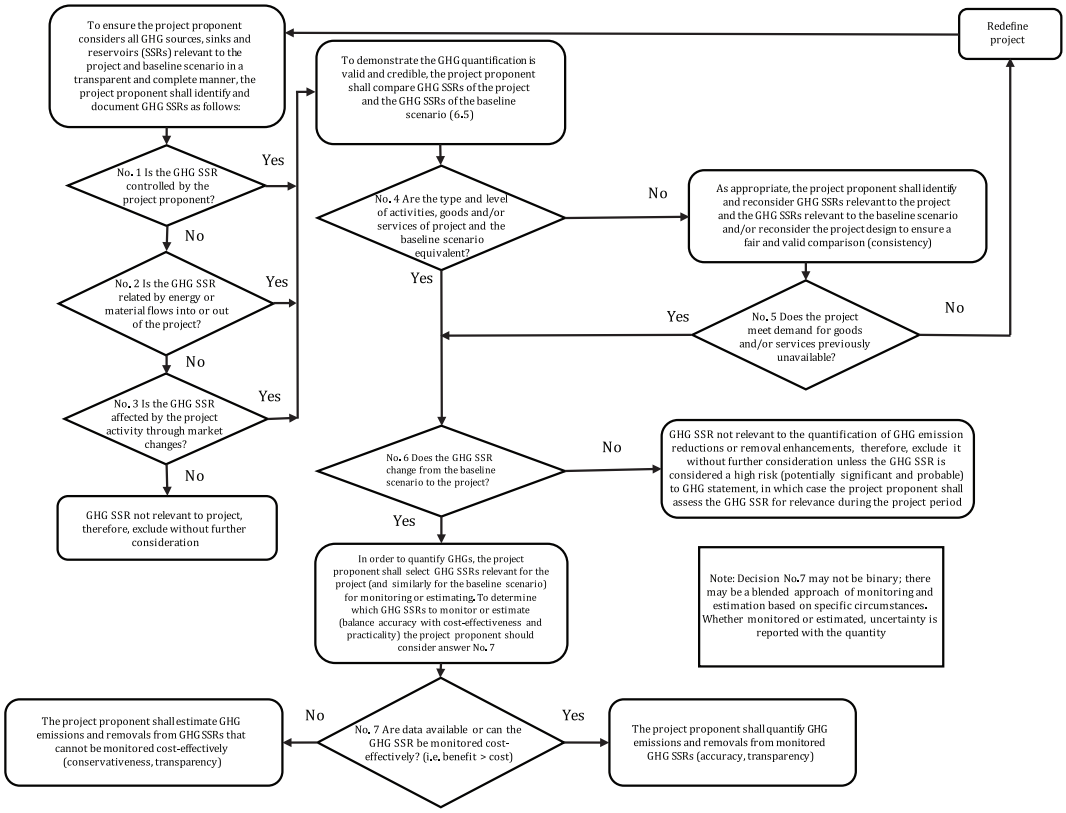


Figure A.3 — Identifying and selecting GHG SSRs

A.3.2.2 Relevant SSRs

This document does not use the term “project boundary”. Instead, it refers to SSRs that are relevant to the project. Relevant SSRs include those that are controlled by the project proponent, those related to the project by material or energy flows, and those affected by the project. The choice of terminology in these cases is intended to make this document neutral and compatible among a range of programmes by avoiding programme-specific definitions and requirements.

A.3.3 Concept of additionality (not used in this document)

The term “additionality” is not used in this document because it is a term commonly used by GHG programmes and is no longer recognized as being programme neutral. This annex provides further clarification to users of the document on the concept of additionality and how it is considered in this document.

Additionality, as a concept, describes the relationship between cause and effect. For any cause and effect, the effect can be described as being additional if it would not have occurred in the absence of the cause. A project may be described as being additional if it would not have occurred in the absence of the GHG programme in which it participates (for example, the clean development mechanism). GHG emission reductions/removal enhancements caused by a GHG project may also be described as being additional if these are greater in quantity than the volume of GHG emission reductions/removal enhancements that would have occurred in the absence of the project.

In order to remain programme neutral, this document does not prescribe criteria or specific requirements pertaining to additionality. Such criteria and specific requirements are the domain of

GHG programmes. However, the concept of additionality is inherent to the GHG baseline determination to ensure that GHG emission reductions or removal enhancements generated by the project go beyond what would have happened in the absence of the project.

A.3.4 Determining the GHG baseline

A.3.4.1 General

The GHG baseline is a quantitative reference of emissions and/or removals that would have occurred in the absence of a project that provides the basis for comparison with project emissions and/or removals. During project planning, the project proponent is advised to consider all potential baseline scenarios, including the proposed project as a potential baseline scenario. If the project is equivalent to the appropriate baseline scenario, there is a risk of no GHG emission reduction or removal enhancement, and the proposed project may not become a valid GHG project.

The predictive quality of quantifying many baseline scenarios, where there is the risk of over-estimating GHG emissions, requires a different approach. Consideration should be given to all feasible baseline scenarios for GHG emissions, and the selected GHG baseline should be plausible over a range of assumptions for the duration of the baseline scenario application. Usually a baseline methodology is used to select the GHG baseline. A conservative GHG baseline is usually adopted among potential baseline scenarios that are equivalent in terms of completeness, consistency, transparency and relevance. Potential baseline scenarios should cover the same period of time as the project. The GHG baseline period and reporting period should be long enough to ensure that the variability in operating patterns are accounted for by the GHG baseline and project emissions performance indicators.

As an example, terrestrial GHG removal projects are likely to use only selected GHGs in the assessment and determination of the GHG baseline. Only the sum of changes of carbon stocks in GHG reservoirs or carbon pools are likely to be considered. Resulting GHG removal enhancements would then be the sum of changes in carbon stocks in the GHG reservoirs or carbon pools less any increase in GHG emissions of all GHGs by GHG sources.

A.3.4.2 Determining SSRs and the GHG baseline

Typically, there are several phases to quantifying a GHG project emission reduction or removal. The first phase is determining the SSRs by gathering data relevant to the identified SSRs (see A.3.2) that are controlled, related and affected. A GHG baseline time period should also be defined. This may be defined by a GHG programme, as applicable. The time period selected for the GHG baseline is the same time period as the project emission reductions or removal reporting period, thus achieving equivalence and an accurate comparison under the same conditions.

The GHG baseline time period and reporting period should be long enough to ensure that the variability in operating patterns are accounted for by the GHG baseline and project emissions performance indicators. The SSRs affected by the project may include material and energy flows in and out of the SSRs. The project proponent determines the scope and SSRs, i.e. limitations, of the project by evaluating the SSRs and their associated emissions, control, physical limits and other criteria that will be included in the project.

NOTE While determining the SSRs, the ability to isolate the SSRs is normally considered in order to minimize uncertainty.

A.3.4.3 Quantifying the GHG baseline

Baseline procedures or methodologies to estimate the GHG baseline are generally customized (i.e. developed by the project proponent) or standardized (i.e. developed by the project proponent or programme authority for specific project types).

Historical conditions (such as GHG emissions or activity level data), market conditions (such as common technology usage) and best available technology (such as the top identified percentage of similar

activities) can also be the basis for the development of baseline methodologies. GHG baselines may be static (constant with time) or dynamic (vary over time).

The GHG baseline is developed for the same time period as the reporting period and provides an estimate of what will occur in the absence of the project. In order to account for relevant variables, linear regression, polynomial equations or other proper mathematical formula can be used.

The quantification of the GHG baseline should be based upon the principles of relevance and accuracy. It is good practice to use default emission factors as a starting point for more project-specific calculations and to estimate also aggregated GHG emissions and removals of the GHG project into a common unit of measure, i.e. CO_2e.

If there is a GHG programme baseline scenario, the proponent records this baseline scenario and compares it to the actual historical and current GHG baseline. Any discrepancies between the programme GHG baseline (methodology) and calculated GHG baseline should be recorded for review by the interested parties.

NOTE A GHG baseline can be determined for a specific GHG project or total emissions in an inventory, i.e. base year.

A.3.5 Quantifying GHG emissions reduction and/or removal enhancement

A.3.5.1 General

The first step in the quantification of GHG emissions reduction and/or removal enhancement is identification of the relevant GHGs for each SSR. These SSRs, normally, would have been identified at the planning stage of the GHG project, as part of the identification of the GHG baseline and the estimation of project emissions/removals.

Once the relevant SSRs have been identified, the next step for the project is to identify parameters related to the respective SSRs that will be estimated or quantified based on actual measurements in order to calculate the GHG baseline and project emissions. The data collected at the planning stage will help in quantifying the GHG baseline data, and the data collected post-implementation of the project will help in quantifying the project emissions. For projects that have a dynamic GHG baseline, e.g. based on the actual production figures, it is good practice that the GHG baseline is calculated using some data measured post-implementation of the GHG project.

A.3.5.2 Collecting GHG data and information related to GHG baseline and project emissions

The nature of the information available to the project proponent determines whether GHG emissions or removals are estimated or quantified based on actual measurements. For example, before the implementation of a project, in general, GHG emissions or removals are estimated, whereas during project operation, GHG emissions or removals can be directly monitored and measured to provide actual data for quantification. (The monitoring and measurement may be carried out at 100 % or be based on a sampling plan depending upon the nature of the sources of data.)

Data could be gathered from multiple sources, such as current manufacturing processes, systems that emit GHGs (direct emissions), energy consumption parameters in terms of fossil fuel consumed and electricity consumed, etc., standard published data for the calculation of GHG emission factors, transportation information (i.e. distance travelled) and fuel consumed.

The GHG emission reduction/enhancement of removals are measured as a difference of the baseline scenario emissions/removals and project emissions/removals.

A.3.6 Managing data quality

Project data quality can be improved by:

— establishing and maintaining a complete GHG information system;

— completing regular accuracy checks for technical errors;

— conducting periodic internal audits and technical reviews;

— appropriate training for project team members;

— performing uncertainty assessments.

An uncertainty assessment can involve either a qualitative (e.g. high, medium, low) or quantitative procedure and typically is less rigorous than an uncertainty analysis, which is a statistically detailed quantitative and systematic procedure to ascertain and quantify uncertainty. Generally, an uncertainty assessment is appropriate during the planning phase of a project, and an uncertainty analysis during the implementation phase. It is up to GHG programmes to decide and stipulate whether an uncertainty analysis is appropriate for implemented projects. For those using this document outside of a programme, an uncertainty analysis should be conducted for implemented quantifications.

Good practice guidance with regard to quality assurance and quality control for land use, land-use change and forestry (LULUCF) projects can be found in Chapter 4.3.4 of Reference [12] and updates as published from time to time.

A.3.7 Monitoring the GHG project

Monitoring procedures may include schedules, roles and responsibilities, equipment, resources and methodologies to obtain, estimate, measure, calculate, compile and record GHG data and information for the project and GHG baseline.

A.3.8 Documenting the GHG project

This document refers to documenting in the context of internal needs linked to auditing and verification and/or validation. It is a complement to reporting that should serve external purposes.

Documentation is linked to the GHG information system and information system controls of the GHG project, as well as to the GHG data and information of the GHG project. Documentation should be complete and transparent.

A.3.9 Verification and/or validation of the GHG project

This document does not require verification or validation. Such requirements are usually elements of a GHG programme. If a GHG project has not been linked to a specific GHG programme, the project proponent has to decide on the type of verification and/or validation (first-, second- or third-party verification) and the level of assurance required against the GHG statement. The GHG statement is a statement on the performance of the GHG project usually made by the project proponent. ISO 14064-3 specifies principles and requirements for the verification and validation of GHG statements.

A.3.10 Reporting the GHG project

Reporting keeps intended users informed about the GHG project. The content and form of the information reported should be tailored to the needs and expectations of the intended user. Project proponents may develop project-specific procedures for reporting depending upon the circumstances of the project, the objectives of reporting, the information needs of intended users, and the requirements of programmes in which a project participates. In all cases, reporting is based on GHG project documentation.

This document does not require the project proponent to make a GHG report available to the public unless a public GHG statement or claim is made about the conformity of the GHG project to this document. In such cases, minimum elements for GHG reports ensure completeness, accuracy and transparency in the public reporting of project information. The information released to the public should allow for fair comparison between various projects.

A high degree of transparency and opportunity for public comment can greatly increase the credibility of a project and is important for the market to assess the value of credits. Moreover, making project

information public is necessary in order to obtain interested party comments for use in project development and management. Project proponents may also use public reports for publicity purposes.

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