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**Greenhouse gas management and  
related activities — Framework and  
principles for methodologies on  
climate actions**

*Gestion des gaz à effet de serre et activités associées — Cadre et  
principes des méthodologies applicables aux mesures en faveur du  
climat*





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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](http://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](http://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 on 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 the following URL: [www.iso.org/iso/foreword.html](http://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*.

## Introduction

The framework in this document provides guidance to countries and other interested parties on a consistent, comparable and transparent approach to selecting, proposing, using, revising and maintaining methodologies on climate action. These methodologies are designed to be reproducible and aim to help climate action and its ambitious goals to be achieved.

The framework supports various organizations, such as:

- government and non-state actors, including local government, industrial associations, technical institutions, and methodology developers and users;
- private and public organizations, environmental NGOs, and other organizations that use climate action methodologies;
- financial institutions that support climate actions.

In addition to methodologies, the framework can also be developed and used for policies and measures.

The developed framework can be used to identify potential and justifiable actions for both climate change mitigation and adaptation.

This document supports many objectives, such as:

- engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions;
- promoting sustainable development and ensuring credibility and transparency, including in governance;
- increasing accountability to ensure, for example, the avoidance of double counting;
- setting goals for enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change;
- contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal;
- cooperating internationally on adaptation efforts, recognizing the importance of taking into account the needs of developing countries.

This document can be used to develop a framework that is compatible with relevant local, national, regional and international climate change policies, and strategies of a country or other interested parties. The framework and its methodology process support a long-term vision on the importance of fully realizing technological and non-technological innovation transfer in order to improve resilience to climate change and to reduce emissions. This document supports the “pledge and review” system with measures undertaken to collect and compile the relevant climate data and relevant information relating to the long-term vision. This document supports all countries, both developed and developing, to better understand and develop their nationally determined contributions.

It aims to increase transparency related to measurement, reporting and verification (MRV), and to reduce risks for cooperative mitigation and adaptation actions. It recognizes the importance of international cooperation on adaptation and mitigation efforts and of taking into account the needs of developing countries.

It highlights the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage.

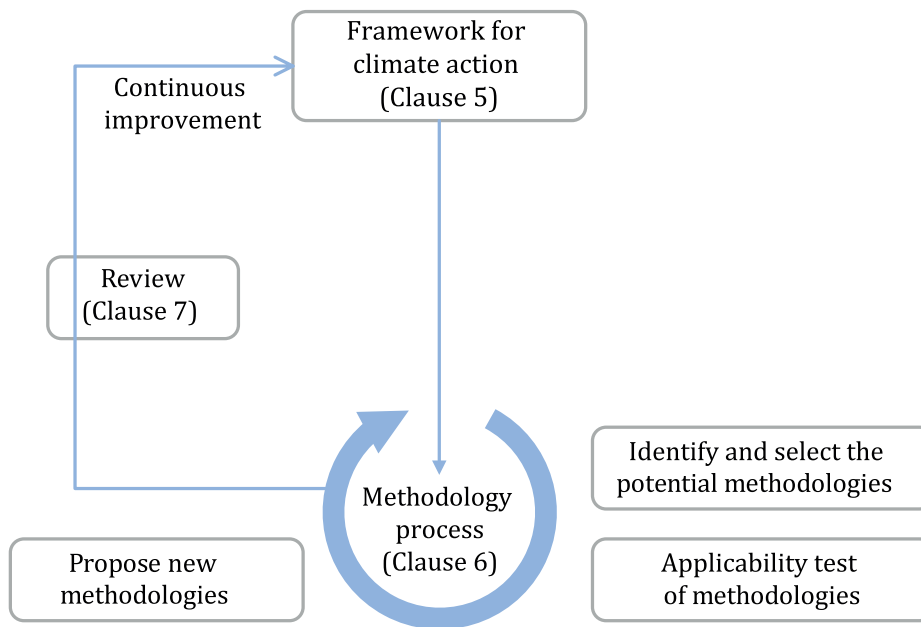
## ISO 14080:2018(E)

It takes into account the Cancun Adaptation Framework<sup>[20]</sup>, including identifying and encouraging good practices, effective adaptation practices, adaptation needs and priorities, support provided and received for adaptation actions and efforts, challenges and gaps.

This document provides a framework to result in:

- adoption of the methodology among best practices and best available technology (BAT);
- improvements in the quality of methodologies;
- improvements in the processes for methodology development;
- improvements in transparency and clarity of climate actions.

[Figure 1](#) illustrates the role and purpose of this document.



**Figure 1 — This document in the context of a framework and methodologies**

This document facilitates the harmonization of existing International Standards (e.g. ISO 14001, ISO 50001, ISO 14064-1 and ISO 14064-2) as well as future International Standards (e.g. related to climate adaptation) to be used to support climate action.

It also provides guidance on how to review the framework and on appropriate communication. This should reduce the risk of inconsistencies in the reporting of aggregated climate actions, by connecting various climate actions with various methodologies and communication responses and reports for disclosing climate actions, thereby saving time and resources.

# Greenhouse gas management and related activities — Framework and principles for methodologies on climate actions

## 1 Scope

This document gives guidelines by means of a framework and principles for establishing approaches and processes to:

- identify, assess and revise methodologies;
- develop methodologies;
- manage methodologies.

This document is applicable to climate actions to address climate change, including adaptation to its impacts and greenhouse gas (GHG) mitigation in support of sustainability. Such actions can be used by or for projects, organizations, jurisdictions, economic sectors, technologies and products, policies, programmes and non-government activities.

This document does not create guidance for a specific methodology.

## 2 Normative references

There are no normative references in this document.

## 3 Terms, definitions and abbreviated terms

### 3.1 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/>

#### 3.1.1 General

##### 3.1.1.1

##### **climate action**

initiative to achieve climate change measures or goals based on mitigation and/or adaptation priorities under climate change policies

Note 1 to entry: Climate action intends to a) reduce or prevent emissions or enhance removals, and b) reduce vulnerability, maintain and increase the resilience, and increase adaptive capacity of human and ecological systems from adverse climate change impacts.

##### 3.1.1.2

##### **environmental integrity**

environmental soundness and enhancement of mitigation and/or adaptation actions that do not lead to direct or indirect environment harm

**3.1.1.3**

**eligibility criteria**

criteria used to demonstrate that mitigation or adaptation actions are based on appropriate methodologies that reduce current and/or future climate change risk

**3.1.1.4**

**organization**

person or group of people that has its own functions with understood responsibilities, authorities and relationships to achieve its objectives

[SOURCE: ISO 14001:2015, 3.1.4, modified — In the definition, “understood” has been added.]

**3.1.1.5**

**interested party**

individual or group that has an interest in any decision or activity of an *organization* ([3.1.1.4](#))

**3.1.2 Mitigation**

**3.1.2.1**

**climate change mitigation**

human intervention to reduce the sources or enhance the sinks of greenhouse gases (GHGs)

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fifth Assessment Report: Climate Change 2014 (AR5)]

**3.1.2.2**

**baseline**

state against which change is measured

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fifth Assessment Report: Climate Change 2014 (AR5)]

**3.1.3 Adaptation**

**3.1.3.1**

**climate change adaptation**

adjustments in ecological, social and/or economic systems in response to actual or expected climatic stimuli or their effects or impacts

EXAMPLE Change to infrastructure and/or some natural systems to reduce the impacts of increased/decreased rainfall, higher temperatures, scarce water or more frequent storms.

Note 1 to entry: Adaptation/climate adaptation refers to change in processes, practices and structures to moderate potential damages or to benefit from opportunities associated with climate change.

Note 2 to entry: Human intervention may facilitate adjustment in some ecological systems to expected climate and its effects.

**3.1.3.2**

**climate scenario**

plausible and often simplified representation of the future climate, based on an internally consistent set of climatological relationships that has been constructed for explicit use in investigating the potential consequences of anthropogenic climate change

Note 1 to entry: Climate scenarios often serve as input to impact models.

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fifth Assessment Report: Climate Change 2014 (AR5 WG III)]



**3.1.3.3****climate risk**

potential of negative impacts of climate change that reflects the interaction among vulnerability, exposure and hazard

Note 1 to entry: Climate risk can be reduced by enhancing adaptive capacity and strengthening resilience of ecology, society and economy.

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fourth Assessment Report: Climate Change 2007 (AR4)]

**3.1.3.4****exposure**

presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected by climate variability or change

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fifth Assessment Report: Climate Change 2014 (AR5)]

**3.1.3.5****adaptive capacity**

ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fifth Assessment Report: Climate Change 2014 (AR5)]

**3.1.3.6****resilience**

capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fifth Assessment Report: Climate Change 2014 (AR5)]

**3.1.3.7****sensitivity**

degree to which a system or species is affected, either adversely or beneficially, by climate variability or change

Note 1 to entry: The effect may be direct (e.g. a change in crop yield in response to a change in the mean, range or variability of temperature) or indirect (e.g. damages caused by an increase in the frequency of coastal flooding due to sea level rise).

[SOURCE: Intergovernmental Panel on Climate Change, IPCC Fifth Assessment Report: Climate Change 2014 (AR5)]

**3.1.3.8****vulnerability**

propensity or predisposition to be adversely affected by climate variability or change

Note 1 to entry: Climate change vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Note 2 to entry: Climate change vulnerability is the degree to which an ecological, social and economic system is susceptible to, or unable to cope with, adverse climate change impacts, including climate variability and extremes.

**3.1.3.9**

**vulnerability assessment**

identification of and predictions for vulnerable groups, critical areas and regions, including estimation of the likelihood and consequence of hazard related to climate change impacts

**3.2 Abbreviated terms**

BAT	best available technology
BAU	business as usual
GTP	global temperature potential
GWP	global warming potential
GHG	greenhouse gas
MRV	measurement, reporting and verification
QA	quality assurance
QC	quality control

**4 Principles**

These principles are general and should be used for a framework on climate action.

- a) **Relevance:** include information about climate action that is material and relevant to the needs of the intended user.
- b) **Consistency:** ensure coherence of the framework and its methodologies and adherence to the goals, targets and objectives for climate action.
- c) **Comparability:** ensure that the methodologies generated, selected and provided for climate action allow for relevant performance-based comparisons.
- d) **Compatibility:** harmonize methodologies on climate action to improve the aggregation and cost-effectiveness of applying them.
- e) **Completeness:** include all relevant emissions and removals, and/or adaptation and mitigation efforts. Include all relevant information to support applicable criteria and procedures.
- f) **Conservativeness:** use assumptions, values and procedures that ensure the impacts of climate action are not overestimated.
- g) **Accuracy:** reduce bias and uncertainties so far as is practical.
- h) **Practicality:** focus on the framework and its methodologies, and include relevant indicators or metrics to meet the needs of the intended users taking into account their accessible resources.
- i) **Flexibility:** allow the framework and its methodologies to accommodate data availability, and technical and institutional capacities.
- j) **Credibility:** increase confidence through trust, integrity, transparency and accountability throughout the methodologies and their process.
- k) **Transparency:** disclose sufficient and relevant information to enable the intended users to make decisions with reasonable confidence in achieving the goals, targets and objectives of climate actions.

## 5 Framework for methodologies on climate action

### 5.1 General

The organization should establish a framework for methodologies with the following information to support climate action:

- climate change policy, strategy and regulation (5.2);
- goals and scope (5.3);

NOTE 1 Goals include targets and objectives.

- MRV, which is undertaken to collect data on emissions, removals, climate change mitigation and/or adaptation actions. This information should be compiled into inventories and reports, and be subject to review or analysis. Annex F provides guidance on MRV in the framework. Annex G shows the relationship between adaptation MRV and adaptation monitoring and evaluation.

NOTE 2 MRV serves to evaluate, track and quantify the impacts of the implemented actions.

The framework for methodologies should:

- be designed strategically, consistent with climate action;
- use a risk-based approach, including climate risk and its associated financial risk, in developing the appropriate methodologies.

The organization should determine:

- the interested parties relevant to climate change issues;
- the needs and expectations of these interested parties;
- which of these needs and expectations are relevant to meet climate goals.

The organization should demonstrate the effectiveness of its framework on climate action.

The top management of the organization who develops the framework should:

- have responsibility for the effectiveness of the framework and for communication to interested parties;
- ensure availability of the human, financial and material resources required.

### 5.2 Climate change policy, strategy and regulations

When developing the framework, the organization should have a procedure for identifying and understanding the following information:

- a) climate change policy and regulations relevant to local, national, regional and international situations, including objectives and priorities, current emissions, current mitigation and adaptation activities, climate change trends, impacts, vulnerabilities, resilience and statements of long-term goals or vision;
- b) climate change strategy, including goals, targets and objectives; its projection and scenario of the country/region, including mitigation and adaptation actions, as applicable;
- c) climate change strategy of the sector, including the value chains, as applicable;

NOTE The value chain will encompass more actors than the supply chain.

- d) climate change needs and expectations of interested parties, including value chains, as applicable.

## 5.3 Goals and scope

When developing the framework, the organization should establish long-term goals and a scope, taking into account the elements of sustainability development, such as the 17 UN Sustainable Development Goals (SDGs) of the 2030 Agenda, and should consider how the framework can contribute to environmental, economic and social benefits to sustainable development. For example:

- a) environment: use products and services with lower emissions, and adopt innovation for resource efficiency;
- b) economy: encourage the use of local labour and develop technical competence for a circular economy;
- c) society: encourage sustainable development within a circular society, reducing climate risks for economic sectors.

The framework should identify types of climate action for mitigation and/or adaptation. Such types could be activities for communities, economic sectors, entities or projects, as well as for products, including services. At the project level, the framework can be applicable for mandatory crediting purposes or for voluntary crediting purposes.

The framework should take into account research and development and/or investment opportunities for technological and non-technological innovation (e.g. behaviour change) for adaptation, mitigation and sustainable development.

The framework should encourage the organization to be innovative, and competitive in the development of technological and non-technological innovation with respect to their business, in order to help them contribute to sustainable economic growth. The framework should also help organizations to make decisions on the timing of investments in new and innovative technologies.

When financial support is expected, the following information can be added into the framework:

- roles, responsibilities and authorities;
- sources of financing;
- timelines and milestones;
- sustainability from the finance and resource perspective;
- other key indicators or metrics, such as indicators or metrics for monitoring implementation and performance evaluation.

If any global climate action of the framework takes place in developing countries, the relevant international cooperation related to capacity building for technological and non-technological innovation transfer should be covered under the framework.

NOTE [Annexes A](#) and [C](#) provide guidance on developing the goals and scope of the framework to support climate action on mitigation and adaptation.

## 6 Methodologies and their development process within the framework

### 6.1 General

The organization should establish methodologies and their development process within the framework. The functions of the framework should be:

- a) identifying potential methodologies among existing methodologies ([6.2](#));
- b) testing potential methodologies to see if these methodologies are directly applicable or require revision or modification ([6.3](#));

- c) proposing new methodologies, including testing their applicability (6.4);
- d) maintaining and updating the methodologies (6.5);
- e) including communication in the methodology profile (6.6).

NOTE [Annexes B](#) and [D](#) provide guidance for methodologies and their development process for mitigation and adaptation.

## 6.2 Identifying potential methodologies among existing methodologies

The organization that will use the framework should identify and select candidate methodologies that address the goals and scope of the framework.

The selection of potential methodologies may come from:

- a) relevant standard methodologies;
- b) other relevant sectorial methodologies;
- c) BAT and good practices.

NOTE For specific economic sectors and countries, the approved standardized baseline<sup>[19]</sup> from the United Nations Framework Convention on Climate Change (UNFCCC) provides guidance in relation to GHG emission or removal factors and could be used to help the organization plan the initiative.

The organization should take into account whether the methodology has been validated and/or verified, as well as positive reports, such as an accredited testing reports.

The organization should justify and document the selection of potential methodologies.

## 6.3 Testing potential methodologies for applicability

The organization should test the selected methodologies identified according to 6.2 to confirm that they meet applicability and compatibility criteria of the framework (e.g. for a climate action plan, national contributions and other result-based mechanisms to enhance environmental integrity and economic and social benefits).

When the organization tests the applicability and determines not to select a methodology because of potential barriers, such as economic, technical or human resources, the organization should identify and document these barriers.

The organization should test and document the intended outcomes.

EXAMPLE The intended outcomes could be:

- total emission reduction and/or improvement of emission intensity for mitigation toward a target;
- its projection and future climate scenario;
- low-carbon products and services to contribute to sustainable development;
- contribution and/or cooperation with other countries;
- development of new and innovative technologies and methodologies to challenge the status quo;
- data and relevant information, including assessing and managing uncertainty;
- justification of the application of the target and related methodologies;
- monitoring performance, including evaluation of the investment and benefits.

The organization should determine if the methodology is directly applicable or if a revision is necessary.

If a revision of an existing methodology is necessary, the organization should:

- document the scope of the revision;
- determine whether the revised methodology is effective and enables transparent and consistent communication of the results of its application.

In order to ensure transparent and consistent communication of the revised methodology, the organization should take into account the expectations of interested parties by:

- holding a public consultation;
- planning the consultation before the implementation of the revised methodology;
- using the results of the consultation to review the design concept and application of the revised methodology;
- communicating to interested parties how the results of the consultation have been taken into account.

### 6.4 Proposing new methodologies

#### 6.4.1 General

If development of a new methodology is required, the organization should assess the proposed methodology, including:

- a) resources (6.4.2);
- b) design concept (6.4.3), including:
  - 1) objectives;
  - 2) plan and process for developing the new methodology;
- c) testing the applicability of the new methodology (6.4.4).

#### 6.4.2 Resources

The organization should allocate sufficient human, technical and financial resources to develop new methodologies, and should select competent persons to develop them.

#### 6.4.3 Design concept

The organization should take into account the following aspects when specifying the design concept:

- interested parties' needs and intended outcomes, including enhancement of environmental integrity and economic and social benefits;
- defined scope and scale;
- timescale for the development of the new methodology.

The organization should plan the methodology development project with the following information:

- a) responsibilities for developing the new methodology;
- b) goal and intended outcomes;
- c) monitoring activities:
  - 1) establishment of the baseline or conduct of the vulnerability assessment (e.g. modelling);

- 2) collection of data and other relevant information;
  - 3) review of the accuracy and management of data, if applicable;
  - 4) estimate of the efficacy of the climate action;
- d) review of the monitoring activity and completing the development of the new methodology.

#### 6.4.4 Applicability test for the new methodology

The organization should test the applicability of the new methodology developed in accordance with [6.3](#).

The organization should evaluate whether the new methodology can support the framework on climate action, and any national contributions and result-based mechanisms that have been planned to help achieve it.

If the actions are funded by governments or financial institutions (e.g. carbon funds), they should assess whether the new methodology can deliver the expected performance toward achieving the goal.

If the potential methodology is intended to be used by industry associations, economic sectors or civil society bodies (e.g. NGOs), they should assess the new methodology to encourage the improvement of their own climate action.

#### 6.5 Maintaining and updating the methodology

The organization should review the methodology when the following information is changed or updated:

- a) boundary or scope of the activities;
- b) emission factors, global warming potential (GWP) or global temperature potential (GTP);
- c) fuel mix;

NOTE 1 For energy generated, used and controlled by the organization.

- d) energy mix;

NOTE 2 For energy outside the control of the organization (e.g. electricity supplied by third parties).

- e) BAT;
- f) baseline;
- g) measurement or monitoring, including setting of indicators or metrics;
- h) results of evaluations.

The organization can use the Plan-Do-Check-Act (PDCA) cycle for maintaining and updating methodologies.

The organization should decide the frequency of regular periodic cycles, by using quality assurance (QA) and quality control (QC) procedures to review, update and maintain the methodology.

#### 6.6 Using the methodology profile for communication

The methodology profile can be used to communicate relevant information to interested parties in order to review the overall contribution of the framework, the methodology and its process to climate actions.

In the contents of the methodology profile, the organization should include the following relevant information for communication purposes:

- a) title;
- b) goals and intended outcomes;
- c) scope;
- d) boundary;
- e) boundary adjustment with other initiatives, as applicable;
- f) GHG effects and potential effects for mitigation and adaptation;
- g) type of the action;
- h) estimation of baseline and climate change vulnerability;
- i) methodology development process;
- j) methodology list;
- k) eligibility criteria, including key indicators or metrics;
- l) sustainable development elements;
- m) use of low-carbon products and services to contribute to sustainable development, as applicable;
- n) contribution to and/or cooperation with other countries or initiatives, as applicable;
- o) development of technological and non-technological innovation, as applicable;
- p) strategies for assessing and managing uncertainties, as applicable;
- q) reporting, as applicable;
- r) strategies for monitoring performance and its evaluation, as applicable;
- s) verification or evaluation as applicable.

[Annex E](#) provides examples of methodology profiles that provide transparent communication of the results applying climate action methodologies, national contributions, as applicable, and other result-based mechanisms.

The organization should consider how to effectively communicate the methodology profile to relevant interested parties.

[Annex H](#) provides examples of how to use this document and related International Standards.

## 7 Review of the framework

### 7.1 General

The organization should review the following outcomes of the framework to assess its effectiveness:

- a) actual and expected performance towards achieving the goals, targets and objectives;
- b) transparent communication of the results of applying climate action methodologies, national contributions, as applicable, and other result-based mechanisms;
- c) implementation of a public consultation for interested parties;



- d) continued relevance and adherence to the relevant climate change policy;
- e) continued relevance and applicability to market conditions.

The organization should review the framework periodically and decide the frequency of the review.

NOTE As per Article 14 of the Paris Agreement, a global stocktake is taken every five years to assess collective progress towards the implementation of nationally determined contributions.

## 7.2 Reviewing the goals and scope

The organization should review the goals and scope in case there are significant changes in the following aspects:

- a) risks to achieving mitigation targets;
- b) risks to climate scenarios;
- c) risks to implementing adaptation plans;
- d) risks to enhancing resilience and reducing vulnerability to climate change;
- e) local, national, regional or international climate change policies and strategies;
- f) energy mix;
- g) international commodity prices;
- h) economic growth or growth rate;
- i) technology advancement;
- j) domestic priorities;
- k) structure of energy prices and fossil fuel subsidies;
- l) regulated cost recovery schemes (e.g. for supply-side options);
- m) access to benefits from energy saving (e.g. demand side energy efficiency);
- n) fuel mix;
- o) costs of implementing climate actions.

## Annex A (informative)

### Development of goals and scope for a framework to support climate action on mitigation

#### A.1 Goals

NOTE See [5.3](#).

The organization should take into account the following aspects when specifying the goals, targets and objectives for mitigation action:

- a) environmental integrity;
- b) needs and expectations of relevant interested parties;
- c) compatibility with relevant local, national, regional or international climate change policies and strategies;
- d) scale and significance of emissions reductions or removals;
- e) BAT;
- f) scope and boundary of emissions;
- g) emission sources and removals;
- h) categories of activities;
- i) intended deliverables, including goals and intended outcomes;
- j) timescale for delivering the objectives.

#### A.2 Scope

NOTE See [5.3](#).

The scope should cover and define the following information:

- a) existing and anticipated domestic measures that support the implementation of the mitigation effort;
- b) baseline and related assumptions, including justification for the projection of carbon intensity;
  - NOTE 1 Baseline can be applicable to project, community and sector under the climate action.
  - NOTE 2 Baseline also serves as a reference period for the national action plan.
  - NOTE 3 Baseline can be business as usual (BAU).
- c) a quantification of expected emission reductions and carbon stocks, including, where relevant, the estimate with and without land use, land-use change and forestry;
- d) annual estimated reduction in emission intensity related to the economy; total emission reduction and/or improvement emission intensity, including value chain;
- e) expected use of international market mechanisms;

- f) approach to avoid double counting;
- g) approach to accounting for the land-use sector;
- h) estimated macroeconomic and marginal cost and social impact of achieving the commitment or target;
- i) an indication of additional mitigation action to be achieved through the provision of support;
- j) an indication of joint mitigation and adaptation action to be achieved;
- k) intended MRV plans.

## Annex B (informative)

### Methodologies and their development process for mitigation

#### B.1 Selecting a methodology

NOTE See [6.2](#).

The organization should cover the following aspects in the selection of methodologies:

- a) environmental integrity;
- b) eligibility criteria;  
NOTE 1 Eligibility criteria for an offset programme include aspects related to baseline setting (baseline scenario or reference model), double counting, leakage and additionality, as applicable.
- c) data availability, including emission factors and default values;
- d) quality of the available data, accuracy, data vintage and assurance of data collection;
- e) total amount of emission reductions or removals, and/or improvement of emission intensity, or improvement over BAU;
- f) baseline and quantification approaches to reduce emissions;  
NOTE 2 In cases where the quantitative reference(s) is (are) not measurable for the baseline, qualitative references can be used to make estimates.
- g) collection and management of data;
- h) value and co-benefits for climate actions (e.g. cost reduction, risk reduction, business opportunities and improvements in competitiveness).

#### B.2 Proposing new methodologies

NOTE See [6.4](#).

The organization should evaluate the following aspects to ensure that the proposed new methodology is compatible and comparable:

- a) identification of parameters (estimated and measured);
- b) measurement point setting and its plan;
- c) evaluation of data requirements and its availability;
- d) quantification methodology;
- e) calibration and uncertainty assessment and analysis;
- f) data and information management;
- g) leakage;
- h) double counting;

- i) reporting based on:
  - 1) established framework;
  - 2) level of ambition;
  - 3) emission reduction accounting;
  - 4) sustainable development;
  - 5) interested parties' consultation.

**EXAMPLE** A mitigation action related to energy efficiency and a mitigation action related to renewable energy can be comparable. The comparability of methodologies might impact the amount of data required.

### **B.3 Applicability test for selected or new methodologies**

**NOTE** See [6.3](#) and [6.4.4](#).

The organization should take into account the following aspects to test the applicability of the selected or new methodology:

- a) environmental integrity;
- b) emission factors and GWP;
- c) double counting;
- d) leakage;
- e) MRV;
- f) uncertainty associated with the application of the methodology.

## Annex C (informative)

### Development of goals and scope for a framework to support climate action on adaptation

#### C.1 Goals

NOTE See [5.3](#).

The organization should take into account the following aspects when specifying the goals, targets and objectives for adaptation action:

- a) needs and expectations of relevant interested parties;
- b) compatibility with relevant local, national, regional or international climate change policies and strategies;
- c) scope (area, cities, economic sectors) and boundary;
- d) climate data and climate risk based on current climate science and action plans, including local, national, regional or sectoral adaptation plans;
- e) scale of the estimated impact of climate change on local, national, regional or international situations in near and distant futures;
- f) categories of activities;
- g) intended deliverables, including goals and intended outcomes;
- h) timescale for achieving the objectives.

#### C.2 Scope

NOTE See [5.3](#).

The scope should cover and define the following information:

- a) existing and anticipated domestic measures that support the implementation of the adaptation contribution;
- b) an indication of additional adaptation action to be achieved through the provision of support;
- c) climate data;
- d) socioeconomic, geographical and environmental data;
- e) current climate and future climate scenarios;
- f) action plan, including local, national or regional adaptation plans;
- g) estimated costs and benefits of achieving the commitments or objectives;
- h) hazards;
- i) climate risk and current vulnerabilities in near and distant futures;

- j) exposure;
- k) adaptation indicators or metrics for monitoring and evaluation.

### C.3 Determining the type of activities

NOTE See 5.3.

The organization may consider the framework for adaptation action and monitor adaptation issues using scientific approaches. It may evaluate hazard, vulnerability and exposure in the timeframe specified under C.1 h).

Table C.1 provides visually illustrated examples of the indicators or metrics of hazard, vulnerability and exposure in the timeframe specified under C.1 h). The indicators or metrics give a scale of one to five, five being the maximum. The example shows the hazard rating increasing towards five, with corresponding vulnerability and exposure ratings reducing from five to one because of potential adaptation actions.

**Table C.1 — Indicators or metrics by hazard, vulnerability and exposure in a given timeframe**

		2015 to 2020	2020	2035	2050
Hazard	High-end scenario	1	2	3	4
	Low-end scenario	1	2	2,5	3
Vulnerability		5	4	3	2
Exposure		5	5	5	4

Under the high climate model uncertainty, the organization should monitor its activities and determine the most effective approach among multi-scenarios and multi-models that will contribute to reduced climate risk through scientific approaches, and that will increase opportunities.

The organization may plan the roadmap with potential methodologies to monitor whether a specific adaptation action is achieving its goal. An example is given in Table C.2.

**Table C.2 — Roadmap for potential methodologies in a given timeframe**

		2015 to 2020	2020 to 2025	2025 to 2030	2030 to 2035
Hazard	High-end scenario				
	Low-end scenario				
Vulnerability		Methodology A Methodology B	Methodology B Methodology C	Methodology C Methodology D	Methodology D
Exposure		Methodology B Methodology E	Methodology B Methodology E Methodology F	Methodology E Methodology F	Methodology F

Disaster prevention and business continuity planning contributes to the avoidance of loss and damage. However, such actions may also contribute to reduced climate risk and adaptation requirements.

For example, some activities under the high vulnerability scenario, in order to increase the resilience of buildings and/or building complexes in the public sector, airports, schools and hospitals, may contribute to disaster prevention as a primary driver but also to adaptation as a secondary driver.

If such projects include the additional adaptation indicators or metrics for monitoring at the evaluation stage, the potential methodology can demonstrate the effectiveness of the activities and its benefits.



## Annex D (informative)

### Methodologies and their development process for adaptation

#### D.1 Selecting a methodology

NOTE See [6.2](#).

The organization should cover the following aspects in the selection of methodology:

- a) eligibility criteria;
- b) environmental integrity that enhances adaptive capacity;
- c) data availability;
- d) quality of the available data, accuracy, data vintage and assurance of data collection;
- e) measurement and monitoring plan, including setting indicators or metrics;
- f) collection and management of data;
- g) value and co-benefits of adaptation actions (e.g. cost reduction, risk reduction, business opportunities, and its competitiveness).

#### D.2 Proposing new methodologies

NOTE See [6.4](#).

The organization should address the following aspects to ensure that the proposed new methodology is compatible and comparable:

- a) adaptation activity applicability (e.g. project);
- b) scope and scale of the action plan, including definition of adaptation needs;
- c) situation analysis, including quantification of own investments and own adaptation efforts;
- d) programmes and projects per sector, including those identified in the context of a national adaptation programme of action and a national adaptation plan;
- e) historical and current climate and future climate scenarios;
- f) climate risk, vulnerabilities and vulnerability assessments;
- g) identification of adaptation indicators or metrics (estimated and measured);
- h) adaptation planning;
- i) monitoring of indicators or metrics;
- j) available data and relevant information management for the action plan;
- k) evaluation of the impact of the action plan, including:
  - 1) applicability of the methodology; or

- 2) applicability of the indicators or metrics;
- l) reporting based on:
  - 1) established framework of the adaptation action plan;
  - 2) level of ambition;
  - 3) sustainable development;
  - 4) interested parties' consultation.

### **D.3 Applicability test for selected or new methodologies**

NOTE See [6.3](#) and [6.4.4](#).

The organization should take into account the following aspects to test the applicability of the selected or new methodology:

- a) climate change impact;
- b) climate risk;
- c) vulnerability;
- d) information provided about climate scenarios, vulnerability index and/or vulnerability assessment;
- e) resilience to climate change;
- f) monitoring and evaluation;
- g) uncertainty associated with the application of the methodology.

## Annex E (informative)

### Examples of methodology profiles

Tables E.1 to E.4 provide examples of methodology profiles.

**Table E.1 — Example of methodology profile: Mitigation (initiative)**

Element	Key technical characteristics
Title and type of the initiative	
Policies and strategies	<ul style="list-style-type: none"> <li>— List of relevant climate change policies and strategies of the country.</li> <li>— Needs and expectations of interested parties.</li> </ul>
Goals	<ul style="list-style-type: none"> <li>— Output characteristics (e.g. total emission reduction and/or improvement energy intensity and/or setting BAU towards a specific target year).</li> <li>— Justification for setting the goals.</li> </ul>
Intended outcomes	<ul style="list-style-type: none"> <li>— List of intended outcomes.</li> </ul>
Scope of the initiative and its representatives	<ul style="list-style-type: none"> <li>— Geographical coverage, related sectors and justifications.</li> </ul>
Boundary adjustment with other initiatives, if applicable	<ul style="list-style-type: none"> <li>— Addressing any potential boundary adjustment, including overlapping areas with other initiatives, and communicating potential conflicts in the related area.</li> </ul>
GHG effects	<ul style="list-style-type: none"> <li>— List of related GHG effects.</li> </ul>
Emission factor and its justification	<ul style="list-style-type: none"> <li>— Input characteristics.</li> <li>— Justification for applied emission factor.</li> </ul>
Estimation of baseline	Description of baseline: <ul style="list-style-type: none"> <li>— estimating the baseline based on a future demand outlook from economic, social and environmental situations;</li> <li>— list of assumptions used to estimate the baseline for future production activities;</li> <li>— applied BAU;</li> <li>— applied emission factor (with or without crediting).</li> </ul>
Methodologies development process	<ul style="list-style-type: none"> <li>— Approach of the evaluation for existing methodologies.</li> <li>— Approach of the selection of methodology.</li> <li>— Approach for new methodologies.</li> </ul>
Methodologies	<ul style="list-style-type: none"> <li>— List of applied BAT and methodologies and related intended outcomes.</li> </ul>
Sustainable development	Estimates of co-benefits: <ul style="list-style-type: none"> <li>— economic (e.g. total number of jobs created, amount of foreign currency savings, amount of government's budget);</li> <li>— social (e.g. human rights, improved access to education, regulation or cultural preservation, health and safety);</li> <li>— environmental (e.g. improved air quality, soil quality, biodiversity).</li> </ul>
Low-carbon products and services to contribute to sustainable development	<ul style="list-style-type: none"> <li>— Estimates of economic, social, environmental co-benefits products and services (e.g. innovative potential products, the economic benefit in 2030 to 2050).</li> </ul>

**Table E.1** (continued)

Element	Key technical characteristics
Contribution and/or cooperation to other countries/initiatives	<ul style="list-style-type: none"> <li>— Estimates of economic, social, environmental co-benefits products and services to improve the energy efficiencies under the global market related to industry (e.g. innovative potential products, the economic benefit in 2030).</li> </ul>
Development of technological and non-technological innovation	<ul style="list-style-type: none"> <li>— Estimates of future technological and non-technological innovation for methodologies (e.g. innovative potential methodologies in 2030).</li> </ul>
Assessment and management of the uncertainty	<ul style="list-style-type: none"> <li>— Quantitative estimate or qualitative description of the uncertainty of the result.</li> <li>— Range of the result from sensitivity analysis for key parameters and assumptions.</li> <li>— Method or approach used to assess uncertainty of calibrated data or estimated data, and normalization of data.</li> </ul>
Report	<ul style="list-style-type: none"> <li>— Goals include level of ambition.</li> <li>— Scope and coverage representative of the industry.</li> <li>— Energy flow.</li> <li>— Frequency of reporting (e.g. annual) and starting and closing dates of the report.</li> <li>— Established framework of methodologies.</li> <li>— Contribution to low-carbon products and services related to the value chain (e.g. transportation of the products).</li> <li>— Contribution to overseas initiatives in the sector.</li> <li>— Contribution to innovative technologies.</li> <li>— Intended outcome and its evaluation for climate actions.</li> <li>— Contribution to sustainable development (co-benefit).</li> </ul>
Monitoring of performance and evaluation	<ul style="list-style-type: none"> <li>— Key performance indicators or metrics selected and the rationale for their selection.</li> <li>— Sources of indicated data.</li> <li>— Performance of the action over time, as measured by the key indicators or metrics (performance).</li> <li>— Estimating GHG effects ex ante, if applicable.</li> </ul>
Verification	<ul style="list-style-type: none"> <li>— Type of verification: self-verification, peer evaluation, third-party verification.</li> <li>— Competency of the internal verifiers, as applicable.</li> </ul>
Communication	<ul style="list-style-type: none"> <li>— List of relevant interested parties.</li> <li>— Interested parties' comments.</li> <li>— Communicating deliverables to interested parties.</li> </ul>

Table E.2 — Example of methodology profile — Mitigation (project)

Element	Key technical characteristics
Title	— The title includes the emission reduction measures (e.g. technology, product or service) adopted.
Policies and strategies	<ul style="list-style-type: none"> <li>— Climate change policy relevant to local, national, regional or international needs.</li> <li>— Climate change strategy of the country, as applicable.</li> <li>— Climate change strategy of sector or industry, including in relation to value chains, as applicable.</li> <li>— Needs and expectations of interested parties, including in relation to value chains for climate change.</li> </ul>
Goals	— Output characteristics (e.g. units).
Intended outcomes	— List of intended outcomes.
Scope (or boundary) of GHG	— Geographical coverage, related sectors, sub-sectors, targeted emission sources/sink.
GHG effects	— List of related GHG effects.
Type	— Project, organization, community, sector or event.
Area	— For example, energy efficiency, forestry, management of peat land.
Methodologies development process	<ul style="list-style-type: none"> <li>— Approach of the evaluation for existing methodologies.</li> <li>— Approach of the selection of methodology.</li> <li>— Approach for new methodologies.</li> </ul>
Eligibility criteria	<p>Characteristics to identify the measures (e.g. technology, product or service) applied to the methodology:</p> <ul style="list-style-type: none"> <li>— conditions that are necessary in order to enable robust calculation of emission reductions by the algorithm contained in the methodology (e.g. the situation before the implementation of the measure, in cases where baseline emissions are calculated on the basis of historical performance of the facility).</li> </ul> <p>Eligibility criteria can be represented by:</p> <ul style="list-style-type: none"> <li>— technology;</li> <li>— technology with a design efficiency or performance indicators or metrics above a certain threshold (e.g. a power plant with a thermal efficiency above X %);</li> <li>— sector to which the measure is applied.</li> </ul>
Estimation of baseline	<ul style="list-style-type: none"> <li>— Assumptions used to estimate baseline emissions.</li> <li>— Total annual and cumulative baseline emissions.</li> <li>— A list of non-policy drivers included in the baseline.</li> <li>— Baseline value for key parameters (e.g. activity data, emission factors and GWP).</li> <li>— Assumptions used to estimate baseline and its value for key parameters.</li> <li>— Parameters are static, dynamic and assumption.</li> <li>— All sources of data used for key parameters, including activity data, emission factors, GWP values and assumption.</li> </ul>

**Table E.2** (continued)

Element	Key technical characteristics
Sustainable development	Provide estimates of co-benefits: <ul style="list-style-type: none"> <li>— economic (e.g. total number of jobs created, amount of foreign currency savings, amount of government’s budget);</li> <li>— social (e.g. improved human rights, access to education, regulation or cultural preservation, health and safety);</li> <li>— environmental (e.g. improved air and soil quality, enhanced biodiversity).</li> </ul>
Monitoring of performance	<ul style="list-style-type: none"> <li>— Key performance indicators or metrics selected and the rationale for their selection.</li> <li>— Sources of indicated data.</li> <li>— Performance of the action over time, as measured by the key indicators or metrics (performance).</li> <li>— Output characteristic (units).</li> <li>— Input requirements.</li> <li>— Estimating GHG effects ex ante, if applicable.</li> </ul>
Assessment and management of the uncertainty	<ul style="list-style-type: none"> <li>— Quantitative estimate or qualitative description of the uncertainty of the result.</li> <li>— Range of the result from sensitivity analysis for key parameters and assumptions.</li> <li>— Method or approach used to assess uncertainty of calibrated data or estimated data, and normalization of data.</li> </ul>
Report	<ul style="list-style-type: none"> <li>— Goals include level of ambition.</li> <li>— Scope and coverage of GHG and other gases.</li> <li>— Statement of the requirements to which conformity has been assessed.</li> <li>— Frequency of reporting (e.g. annual) and starting and closing dates of the report.</li> <li>— Interested parties’ consultation and its result for the climate action.</li> <li>— Established framework of methodologies.</li> <li>— Intended outcome of climate actions.</li> <li>— Contribution to sustainable development (co-benefit).</li> </ul>
Verification	<ul style="list-style-type: none"> <li>— Type of verification: self-verification, peer evaluation, third-party verification.</li> <li>— Competency of the internal verifiers, as applicable.</li> </ul>
Communication	<ul style="list-style-type: none"> <li>— List of relevant interested parties.</li> <li>— Interested parties’ comments.</li> <li>— Communicating deliverables to interested parties.</li> </ul>

Table E.3 — Example of methodology profile — Adaptation

Element	Key technical characteristics
Title	— The title includes the adaptation impact measures (e.g. technology, product or activities service) adopted.
Policies and strategies	<ul style="list-style-type: none"> <li>— Climate change policy relevant to local, national, regional or international needs.</li> <li>— Climate change strategy of the country.</li> <li>— Climate change strategy of sector or industry, including in relation to value chains.</li> <li>— Needs and expectations of interested parties, including in relation to value chains for climate change.</li> </ul>
Goals	— Output characteristics.
Intended outcomes	— List of intended outcomes.
Scope (or boundary) of activities	— Geographical coverage, related sectors, sub-sectors, targeted activities.
Situation analysis	<p>Analysis that includes involvement of key interested parties, ownership of the action plan, climate data and information, vulnerability assessment and selected future climate scenarios:</p> <ul style="list-style-type: none"> <li>a) current situation and performance;</li> <li>b) average historical performance;</li> <li>c) performance of similar products and technologies which compete with the project technology;</li> <li>d) BAT.</li> </ul>
Type	— Project, organization, community or sector.
Area	— Vulnerability or adaptation planning.
Methodologies development process	<ul style="list-style-type: none"> <li>— Approach of the evaluation for existing methodologies.</li> <li>— Approach of the selection of existing methodology.</li> <li>— Approach for new methodologies.</li> </ul>
Eligibility criteria and key indicators or metrics	<p>Characteristics to identify the measures (e.g. technology, product, activities) applied to the methodology:</p> <ul style="list-style-type: none"> <li>— conditions to enable situation analysis (e.g. the situation before the implementation of the measure on the basis of historical performance);</li> <li>— all sources of data used for key parameters, including activity data, GWP values, GTP value and assumption.</li> </ul> <p>Eligibility criteria may be represented by:</p> <ul style="list-style-type: none"> <li>— activities themselves;</li> <li>— activities with performance indicators or metrics above a certain threshold.</li> </ul>
Sustainable development	<p>Provide estimates of co-benefits aspects and targets to be addressed:</p> <ul style="list-style-type: none"> <li>— economic (e.g. total number of jobs created, amount of foreign currency savings, amount of government's budget);</li> <li>— social (e.g. improved human rights, access to education, regulation or cultural preservation, health and safety);</li> <li>— environmental (e.g. improved air and soil quality and enhanced biodiversity).</li> </ul>

Table E.3 (continued)

Element	Key technical characteristics
Monitoring of performance	<ul style="list-style-type: none"> <li>— Key performance indicators or metrics selected and the rationale for their selection.</li> <li>— Sources of indicated data.</li> <li>— Output characteristic.</li> <li>— Performance of the action over time, as measured by the key indicators or metrics (performance).</li> </ul>
Assessment and management of the uncertainty	<ul style="list-style-type: none"> <li>— Quantitative estimate or qualitative description of the uncertainty of the result.</li> <li>— Range of the result from sensitivity analysis for key parameters and assumptions.</li> <li>— Method or approach used to assess uncertainty of calibrated data or estimated data, and normalization of data.</li> </ul>
Report	<ul style="list-style-type: none"> <li>— Goals include level of ambition.</li> <li>— Scope and coverage of GHG and other gases.</li> <li>— Statement of the requirements to which conformity has been assessed.</li> <li>— Frequency of reporting (e.g. annual) and starting and closing dates of the report.</li> <li>— Interested parties' consultation and its result for the climate action.</li> <li>— Established framework of methodologies.</li> <li>— Intended outcome of climate actions.</li> <li>— Contribution to sustainable development (co-benefit).</li> </ul>
Evaluation	<ul style="list-style-type: none"> <li>— Type of evaluation: self-evaluation, peer evaluation, third-party evaluation.</li> <li>— Competency of the evaluator, as applicable.</li> </ul>
Communication	<ul style="list-style-type: none"> <li>— List of relevant interested parties.</li> <li>— Interested parties' comments.</li> <li>— Communicating deliverables to interested parties.</li> </ul>



Table E.4 — Example of methodology profile — Mitigation and adaptation

Element	Key technical characteristics
Title	— The title includes the mitigation and adaptation impact measures (e.g. technology, product or activities service) adopted.
Policies and strategies	<ul style="list-style-type: none"> <li>— Climate change policy relevant to local, national, regional or international needs.</li> <li>— Climate change strategy of the country.</li> <li>— Climate change strategy of sector or industry, including in relation to value chains.</li> <li>— Needs and expectations of interested parties, including in relation to value chains for climate change.</li> <li>— Classified policies and strategies.</li> <li>— Classified regulation, taxation, and insurance.</li> </ul>
Goals	— Output characteristics.
Intended outcomes	<ul style="list-style-type: none"> <li>— List of intended outcomes.</li> <li>— Potential effect over the activities to reduce emission or other gases and/or increase resilience (e.g. expected total number of direct and indirect beneficiaries and number of beneficiaries relative to total population) to climate change.</li> </ul>
Scope of activities	— Geographical coverage, related sectors, sub-sectors, targeted activities.
Type	— Project, organization, community or sector.
Area	<ul style="list-style-type: none"> <li>— Reducing emissions and other gases (energy, low emission transport, building, cities, industries).</li> <li>— Increasing resilience (people, communities, health, food and water security, infrastructure, ecosystem).</li> <li>— Forestry and land use (forest conservation, and forest management, agro forestry, agricultural irrigation, water treatment).</li> </ul>
Sustainable development	<p>Provide estimates of aspects and targets to be addressed:</p> <ul style="list-style-type: none"> <li>— economic (e.g. total number of jobs created, amount of foreign currency savings, amount of government's budget);</li> <li>— social (e.g. human rights, improved access to education, regulation or cultural preservation, health and safety);</li> <li>— environmental (e.g. improved air quality, soil quality and enhanced biodiversity).</li> </ul>
Duration	— Years.
Situation analysis	<p>Analysis that includes involvement of key interested parties and ownership of the action plan:</p> <ul style="list-style-type: none"> <li>a) current situation and its potential performance;</li> <li>b) average historical performance;</li> <li>c) performance of similar products and technologies which compete with the project technology;</li> <li>d) BAT.</li> </ul>
Financial need	<ul style="list-style-type: none"> <li>— Scale and intensity of vulnerability to climate change (e.g. level of exposure to climate risk and beneficiary for country, community, groups).</li> <li>— Elaboration of how the project or programme addresses difficulties related to finance.</li> </ul>
Methodologies process	<ul style="list-style-type: none"> <li>— Approach of the evaluation for existing methodologies.</li> <li>— Approach of the selection of existing methodology.</li> <li>— Approach for new methodologies.</li> </ul>

**Table E.4** (continued)

Element	Key technical characteristics
Eligibility criteria	<p>Characteristics to identify the measures (e.g. technology, product, activities) applied to the methodology:</p> <ul style="list-style-type: none"> <li>— conditions to enable situation analysis (e.g. the situation before the implementation of the measure on the basis of historical performance);</li> <li>— all sources of data used for key parameters, including activity data, GWP values, GTP value and assumption.</li> </ul> <p>Eligibility criteria may be represented by:</p> <ul style="list-style-type: none"> <li>— activities themselves;</li> <li>— activities with performance indicators or metrics above a certain threshold.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>— Key performance indicators or metrics selected and the rationale for their selection.</li> <li>— Sources of indicated data:               <ul style="list-style-type: none"> <li>a) baseline and information collection and analysis;</li> <li>b) project-related data collection and analysis;</li> <li>c) roles, responsibilities of involved personnel and gender timelines to the relevant sectors (e.g. climate-resilient agriculture, sustainable climate-resilient tourism, fisheries, green jobs).</li> </ul> </li> <li>— Output characteristic (units, personnel, gender).</li> <li>— Performance of the action over time, as measured by the key indicators or metrics (performance).</li> </ul>
Gender	<ul style="list-style-type: none"> <li>— Disaggregated the participants by gender.</li> <li>— Present involvement and future plan for improvement.</li> </ul>
Assessment and management of the uncertainty and inherited climate risk	<ul style="list-style-type: none"> <li>— Quantitative estimate or qualitative description of the uncertainty of the result.</li> <li>— Range of the result from sensitivity analysis for key parameters and assumptions.</li> <li>— Method or approach used to assess uncertainty.</li> <li>— Calibrated data or estimated data.</li> </ul>
Report	<ul style="list-style-type: none"> <li>— Goals include level of ambition.</li> <li>— Scope and coverage of GHG and other gases.</li> <li>— Frequency of reporting (e.g. annual) and starting and closing dates of the report.</li> <li>— Interested parties' consultation and its result for the climate action.</li> <li>— Established framework of methodologies.</li> <li>— Intended outcome of climate actions.</li> <li>— Contribution to sustainable development; aspects and targets to be addressed.</li> </ul>
Evaluation	<ul style="list-style-type: none"> <li>— Type of evaluation:               <ul style="list-style-type: none"> <li>a) self-evaluation, peer evaluation, third-party evaluation;</li> <li>b) country-, regional-, thematic-initiative level.</li> </ul> </li> <li>— Competency of the evaluator, as applicable.</li> <li>— Principles:               <ul style="list-style-type: none"> <li>a) independence and impartiality;</li> <li>b) transparency;</li> <li>c) participation of all the relevant interested parties (first and foremost, communities and women);</li> <li>d) respect for the beliefs, culture and customs of the beneficiaries;</li> <li>e) credibility.</li> </ul> </li> </ul>

## Annex F (informative)

### Measurement, reporting and verification in the framework

#### F.1 General

The framework for all climate action should include the consistent and comparable approach of MRV.

MRV for mitigation should cover the scope of measurement, the emission source(s) and parameters, the targeted emission, other gases (if applicable) and appropriate measurement points. The adaptation action should define the goals and scope, and then identify the relevant climate data sources and the system of indicators or metrics.

The selected personnel should decide how the measurement and its data are managed in respect of the underlying QA and QC.

The measurement device should be calibrated appropriately in order to minimize the uncertainty of relevant data and its sources.

Measurement is the recommended approach for selecting or developing the methodology. However, in cases where there are high economic, social or technical barriers, calculation and estimation can be considered instead.

The organization may calculate with formula default values and emission factors in terms of mitigation activities, either by economical barrier (e.g. high cost of measurement devices and personnel) or by technical barrier (e.g. no competent personnel or technical device available). In such cases, the formula applied should be clearly documented and justified in a conservative manner. The selection of appropriate emission factors will impact the quality of the final GHG data under an acceptable range.

The development of MRV will help to ensure environmental integrity (E.2), baseline setting (E.3), achieving emission reductions in broader segments of economy (E.4), transparency (E.5) and avoidance of double counting of emission reductions (E.6).

#### F.2 Environmental integrity

The organization should take various approaches to support high environmental integrity. The appropriate methodologies and its eligibility criteria can assist in higher environmental integrity.

#### F.3 Baseline setting

The organization should achieve the measurable emission reductions and/or adaptation efforts as conservative baseline (reference levels) that would have been observed in absence of the proposed climate actions.

The organization should understand that mitigation includes emission reduction or adaptation effort indicators or metrics drivers in the targeted (sub-) sectors (segments) of the economy (e.g. economics growth, single source economy, energy intensity, price elasticity, expected output levels).

Existing and planned policies, strategies and regulations should also be reflected and accounted within the baseline.

The baseline should be adjustable to unforeseen changes in macroeconomic conditions and real activity levels (observed ex post) so that the emission reductions and/or the adaptation efforts cannot be earned for decreases in activity levels.

### F.4 Achieving emission reductions in broader segments of economy

The internationally transferable mitigation outcomes (e.g. carbon credits, clean development mechanism, carbon market) can be a tool that can result in net emission reductions at the global level. To incentivise widespread, more comprehensive climate change actions, the focus of the new approaches is on the mitigation activities in broad segments of the economy as compared to a project-based approach. The scopes of the “broad segment of the economy” can be defined as a sub-sector or sector of the national economy. For example, the IPCC (2006)<sup>[14]</sup> definition of sub-sectors and sectors could be used. The scales of deployment could be a city (urban area), a province (sub-national) or economy-wide. The climate actions can combine policies and measures that a country deems appropriate.

### F.5 Transparency

MRV should be transparent and appropriate to the scope of measures and policy actions defined for a group of emission sources. For example, the MRV system would be established at the level of individual large-point sources of emissions, such as industrial installations or power plants. MRV could also cover the aggregate emissions established based on surveys and data collected at the points of fuel distribution (e.g. for urban transport). The selected MRV would then be deployed at the selected scale of the mitigation actions [e.g. at (sub-) sector, city or national level]. MRV should be consistent with the national MRV approaches or principles, as well as with the international emerging MRV principles under the UNFCCC. MRV should allow use of independent verification.

### F.6 Avoidance of double counting of emission reductions

Double counting may occur if the same emission reduction or removal units are accounted for more than once. For example, one electric company and its affiliated company may quantify and report emissions from the same electricity production. Another example could be in a context of a bus route starting from City A with a destination of City B. In such an example, double counting may occur when city B accounts transportation emissions, including the segments of all bus routes within its jurisdiction; whereas at the same time City A accounts transport emissions covering all routes originating from its jurisdiction. In the above examples, overlapped organizational boundaries settings and the different MRV methodologies can lead to double counting.

In the context of domestic and/or international compliance purposes involving offsetting, double counting may occur as a result of:

- double issuances of units for the same climate action (e.g. one issuance occurs at the domestic level, and another at the international level); or
- the double uses of the same unit after its issuance (e.g. double or multiple uses of the same credits for different offsetting purposes).

As a consequence, double counting may allow emissions to be either increased or reduced less. In particular, emission reductions units that are transferred to the international buyers should not be accounted for meeting domestic objectives/pledges (e.g. counted in the nationally determined contributions of the units supplying party), since the impact of the underlying activities may reflect in the inventories of the national/sectoral emissions.

The framework supports development of technical solutions, such as transparent accounting principles, to demonstrate that no double counting is occurring. It should consider:

- avoiding overlapping while setting boundaries;

- ensuring the use of consistent methodologies for the same type of emission sources (as per the example above for transportation emissions);
- building the information disclosure for climate actions;

NOTE The system aims to record and manage the climate actions in a transparent manner. Wherever possible, a self-declaration/attestation step for the climate actions can be embedded to avoid possible double issuance and/or double uses.

- addressing any potential overlapping area, and communicating potential conflicts of the related area.

The creditable climate actions can be complex depending on several factors, such as:

- a) the boundaries and speed of economic and structural developments of targeted sectors (e.g. mature urban areas as compared with cities at the rapid urbanization stage);
- b) the level of policy interactions and leakage issues (e.g. introducing carbon tax to only the electricity sector, leading to increased electricity costs to sectors, such as steel and aluminium that could lead to shifting of activities to other jurisdictions);
- c) the availability of data to establish performance indicators or metrics and benchmarks (comparability of emission sources).

The reporting supports transparent and consistent measurement process to ensure the impact by the climate action. The reporting should cover:

- goal, including level of ambition;
- scope and coverage of GHG and other gases as appropriate;
- frequency of reporting (e.g. annual) and starting and closing of the report;
- interested parties' consultation and its result;
- framework of methodologies and methodologies development process;
- intended outcome;
- contribution to sustainable development.

The reporting can be submitted to the person or body responsible for the review. Such person or body may review indicators covering scope, sector, methodologies, and technological and non-technological innovation of climate actions to harmonize aggregated action.

To verify the intended outcome of climate action, there are three types of conformity assessment that organization can take into account:

- first party: a statement of conformity made by a manufacturer or supplier (e.g. the organization itself, community itself or economic sector itself);
- second party: a statement of conformity made by a user or purchaser through a common process;
- third party: a statement of conformity made by an impartial and independent third party.

The third-party verification enhances the credibility of the framework with interested parties and provides proper feedback to the framework.

## Annex G (informative)

### Relationship between adaptation measurement, reporting and verification and adaptation monitoring and evaluation

Adaptation MRV	Monitoring and evaluation
	<p><b>Situation analysis</b></p> <p>— Analysis that includes involvement of key interested parties, ownership of the action plan, climate data and information, vulnerability assessment and selected future climate scenarios.</p> <p><b>Design and plan</b></p> <p>— The setting of goals, targets, objectives and output measures, which depends on the availability of quality data.</p> <p><b>Design of the framework of monitoring and evaluation</b></p> <p>Design that includes identifying, selecting, developing and managing indicators or metrics by focusing on the beneficiary, in order to decrease vulnerability, increase resilience, potentially decrease the impact of future climate risk, and increase biodiversity over the action plan by using a risk-based approach and evidence-based evaluation process and plan.</p> <p><b>Evaluation before monitoring and validation</b></p> <p>Items to be validated before:</p> <ul style="list-style-type: none"> <li>— needs of the action plan: goals, targets, objectives and output measures and data;</li> <li>— needs of the beneficiaries;</li> <li>— baseline and its situation in the action plan.</li> </ul> <p><b>Implementation of the action plan</b></p>
<b>Measurement</b>	<p><b>Monitoring</b></p> <p>Monitoring using indicators or metrics and managing the information with evidence and reports.</p>
<b>Report</b>	<p><b>Report</b></p>
<b>Verification</b>	<p><b>Evaluation</b></p> <p>Evaluation that includes the effectiveness of an adaptation action, assessing efficiency, understanding equity, providing accountability, assessing intended outcomes and improving learning and future activities for self-evaluation and peer evaluation.</p> <p><b>Evaluation of the completion of action plan and verification</b></p> <p>Items to be verified after:</p> <ul style="list-style-type: none"> <li>— evaluation of the indicators or metrics of framework monitoring and evaluation;</li> <li>— result of monitoring and reporting;</li> <li>— effectiveness of an adaptation action, assessing efficiency, understanding equity, providing accountability, assessing intended outcome and improving learning and future activities.</li> </ul>

## Annex H (informative)

### Examples of how to use this document and related International Standards

#### H.1 General

This annex presents an example of using this document in practice and examples of how it can be used together with existing International Standards, such as ISO 14001 and ISO 50001.

#### H.2 Example of using this document for industry action

This document supports the “pledge and review” system. It promotes setting ambitious goals and targets for emission reduction per industry sector, and their review by a third party. The PDCA cycle can be used by an industry as follows.

Plan (goals and target-setting):

- review the Paris Agreement<sup>[18]</sup> and domestic climate change policies and regulations;
- set ambitious goals and targets, including challenges for BAT and an international comparison of energy efficiency, and justify the goals and targets as appropriate.

Do (implementation and report):

- implement actions to challenge the goals and targets;
- enable participating sectors to report using the methodology profile on a central website.

Check (verification):

- report progress of actions and enable assessment by a third-party committee.

Act

- revise actions of the participating industries using the findings of the committee’s assessment;
- when goals and targets are achieved, set higher goals and targets.

As an example, Keidanren (Japanese Business Federation) acted by establishing their “Voluntary Action Plan on the Environment” in 1997<sup>[11]</sup>. The initial goal was to reduce emissions to the level of FY 1990 during 2008 to 2012. The result was much greater: a 12,1 per cent emission reduction compared with FY 1990. About half of the participating industries raised their goals and targets voluntarily through the PDCA cycle.

In 2013, Keidanren followed this up by launching a plan called “The Commitment to a Low Carbon Society”<sup>[12]</sup>, which encourages industries to formulate action plans based on the following four pillars.

- Reducing emissions from domestic business operations (reduction targets established for 2020 and 2030).
- Strengthening co-operation with consumers, customers and other interested groups.
- Promoting contributions at the international level.



— Developing innovative technologies.

Including 62 sectors of Keidanren, a total of 115 sectors have participated in the plan and set goals and targets for GHG reduction towards 2020, and 107 sectors towards 2030. The actions of the first pillar cover over 80 per cent of the high-energy intensity industries and 51 per cent of the total energy-related emissions in Japan.

The aim of the second and third pillars is to encourage industries to develop low-carbon products and services as part of their core business, and to transfer technologies and practical knowledge. In respect of transparency, sectors report to a joint conference of advisory councils to the government as well as to the third-party Evaluation Committee for Keidanren's Commitment to a Low Carbon Society, where an annual follow-up report on industries' performance and future challenges is compiled by a group consisting of third-party academic experts from universities and research institutes.

### **H.3 Example of using this document and ISO 14001 for climate action methodology**

This document can be used with ISO 14001 to include environmental management systems in methodologies for climate action. It encourages ISO 14001 users to clarify their environmental activities in order to meet climate change policies, ambitious goal setting targets, and additional economic and social benefits in line with the Sustainable Development Goals (SDGs) set by the United Nations. It supports building a common framework platform where ISO 14001 users can report and measure aggregated global climate action. For example, various communities can upload their monitoring data on the off-peak charging of batteries for electric vehicles, which facilitates lower emissions and costs, and are thus able to evaluate this non-technological innovation action. Such a framework enables the various communities to be linked and to transfer practical knowledge for creating shared value (CSV) for environmental, social and economic benefits. In addition, ISO 14001 users can use the relevant methodologies profiles for communicating with stakeholders. The voluntary information disclosure can help financial institutions to assess the additional value of climate actions taken by the organization.

### **H.4 Example of using this document and ISO 50001 for climate action methodology**

This document can be used with ISO 50001 to include energy management systems in methodologies for climate action. The requirements in ISO 50001 enable an organization to develop and implement an energy policy to facilitate the continuous improvement of energy performance. This document can support the energy industry to challenge the goals, targets and objectives set by ISO 50001 in order to improve energy performance. When applied to high-energy intensity industries, this action will significantly impact national contributions to energy performance. This document supports building a common framework platform to report and measure data in order to improve processes; for example, reporting and measuring data on value chains in order to improve energy efficiency in the life cycle of a product.



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