

# TECHNICAL REVIEW GUIDE

*Supporting the review  
of the impacts of  
policies and actions*

ICAT SERIES OF  
ASSESSMENT GUIDES





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## How to use the Assessment Guides

This guide is part of a series developed by the Initiative for Climate Action Transparency (ICAT) to help countries assess the impacts of policies and actions. It is intended to be used in combination with other ICAT assessment guides and can be used in conjunction with other guidance.

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## **Introduction and key concepts**

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# 1 Introduction

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*Governments around the world are implementing increasingly ambitious policies and actions in pursuit of sustainable development and climate change objectives. Robust monitoring and reporting frameworks are essential in ensuring that policies and actions are effective in delivering their intended outcomes. Technical review is part of a state-of-the-art framework and can bring a number of benefits.*

*Reviews can enhance transparency, trust and confidence in the implementation of policies and actions, and the reporting of their impacts. This can be particularly important to donor agencies and financial institutions, which in turn can help policymakers secure funding or financing for their policies and actions. Reviews can play an important role in supporting learning and improvement of assessments over time. They can also help prepare countries for participating in technical expert review in line with the modalities of the Paris Agreement.*

*The unprecedented challenge of climate change requires that society undergoes a fundamental shift away from carbon-intensive and unsustainable models of development. As ever deeper emissions reductions are required, the effective assessment of policy impacts becomes increasingly important, and technical review in supporting and strengthening assessment processes becomes critical. The Initiative for Climate Action Transparency (ICAT) Technical Review Guide helps policymakers and technical reviewers engage in productive reviews that can achieve these aims.*

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## 1.1 Purpose of the guide

ICAT provides methodologies for assessing the greenhouse gas (GHG), sustainable development and transformational impacts of policies and actions. This document provides guidance for conducting technical review of impact assessment reports. Technical review is a process that evaluates an assessment report in accordance with the criteria and scope of the review.

Technical review can enhance policies and actions, and their assessment by:

- enhancing the credibility, accuracy and comprehensiveness of the assessment through a process of learning and improvement
- enhancing the transparency, stakeholder engagement and legitimacy of reported assessments
- enabling enhanced ambition in, and financing of, policies by increasing their effectiveness and the credibility of reporting.

The guide helps answer the following questions:

- Were the impacts of the policy that were estimated and reported in the assessment report consistent with ICAT key recommendations and assessment principles?
- How might future impact assessments be improved?

The guide was developed with the following objectives in mind:

- to raise awareness of the benefits of technical review
- to provide practical guidance on planning and conducting technical review fit for users' objectives.

The guide supports users in achieving various objectives for technical review. These objectives are described in [Chapter 5](#).

The guide is intended to be used in combination with any other ICAT documents that users choose to apply. The series of ICAT assessment guides is intended to enable users to assess the impacts of

a policy<sup>1</sup> in an integrated and consistent way within a single impact assessment process. Refer to the *Introduction to the ICAT Assessment Guides*<sup>2</sup> for more information about the ICAT assessment guides and how to apply them in combination.<sup>3</sup>

## 1.2 Intended users

This guide is intended for two different target audiences. The first is the policymakers who will assess and report on the GHG, sustainable development and/or transformational impacts of their policies in an assessment report. These can be national, subnational or municipal governments, or others. Throughout this guide, the term “user” refers to this audience, and each of the ICAT assessment guides describes these users further.

The second target audience is those who conduct technical review of these impact assessments. [Chapter 3](#) describes the various entities that can conduct a technical review (e.g. government agencies, academia, consultants, independent auditors). Throughout the guide, the term “technical reviewer” or “reviewer” refers to the entity or individual conducting the technical review.

## 1.3 Scope and applicability of the guide

This document provides general principles, concepts, considerations and procedures that are applicable to the technical review of an assessment report. Users determine whether, when and how to undertake technical review. Reviewing reports of GHG, sustainable development, transformational change and non-state or subnational assessments can help improve future assessments and provide confidence in the reported results. Users who are not currently pursuing review of their assessment reports can use this guide to consider and prepare for technical review in the future.

<sup>1</sup> Throughout this guide, where the word “policy” is used without “action”, it is used as shorthand to refer to both policies and actions. See [Glossary](#) for definition of “policy or action”.

<sup>2</sup> <https://climateactiontransparency.org/wp-content/uploads/2020/01/Introduction-to-the-ICAT-Assessment-Guides.pdf>

<sup>3</sup> <https://climateactiontransparency.org/wp-content/uploads/2020/01/Technical-Review-Guide-Executive-summary.pdf>

This document is organized into three parts (see [Figure 1.1](#)) and details a process for users to follow when conducting a technical review. The guide outlines three different approaches (first, second and third party) for conducting a technical review for the user to choose from, depending on their objectives. It describes elements that define credible technical review and the steps to follow when pursuing or conducting technical review. To produce a credible technical review, technical reviewers should follow a documented and systematic review process.

The scope of this guide includes the technical review process that leads to a technical review report. The review evaluates an assessment report, which documents the information necessary to demonstrate how the key recommendations were followed and that they were followed in a manner consistent with the principles.

The assessment report can be developed by following a single ICAT assessment guide such as the *ICAT Transport Pricing Methodology*, or can be based on a number of assessment guides such as the *Transport Pricing Methodology*, *Sustainable Development Methodology* and *Stakeholder Participation Guide*. An overview of the series of ICAT assessment guides is provided in the *Introduction to the ICAT Assessment Guides*.

The guide is applicable to impact assessments that have followed the “key recommendations approach”, but not to those that have followed the “flexible approach”. Refer to the *Introduction to the ICAT Assessment Guides* for more information on these two approaches.

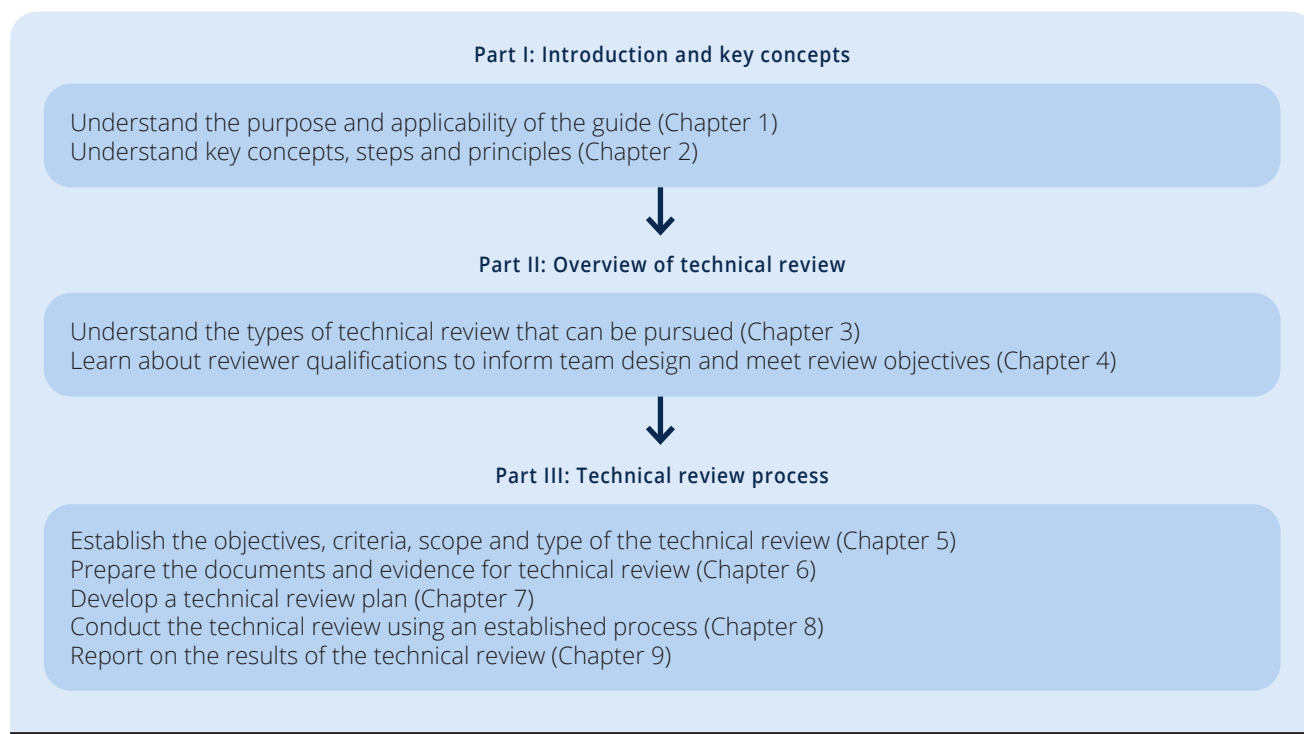
## 1.4 When to use the guide

The guide can be used throughout the policy cycle, depending on when the impact assessment was conducted, including:

- **before policy implementation** – to review reported estimates of expected future GHG, sustainable development and/or transformational impacts of a policy (through ex-ante technical review)
- **during policy implementation** – to review reported estimates of achieved GHG, sustainable development and/or transformational impacts to date; key performance indicators; and expected future impacts of a policy

FIGURE 1.1

## Overview of the guide



- **after policy implementation** – to review reported historical GHG, sustainable development and/or transformational impacts that occurred as a result of a policy (through ex-post technical review).

The guide is designed mainly for technical review during or after policy implementation (i.e. ex-post technical review), although users can apply it to technical review of an ex-ante impact assessment. For example, technical review can be performed before implementation of a policy when the user, as part of their planning activities, wants to obtain confidence that the policy is likely to achieve its expected impact. Technical review is more likely to be performed ex-post – for example, before a user’s public release of a final assessment report, to provide a progress update and inform a potential adjustment to the course of a policy, or to offer conclusions on the final performance and effectiveness of a policy. This allows many material issues to be corrected before the release of the assessment report.

In GHG programmes and related assessment processes, reviewing an ex-ante impact assessment is known as “validation”, and reviewing an ex-post

impact assessment is known as “verification”. This guide uses the term “technical review” to apply to both validation and verification, and, like the Greenhouse Gas Protocol *Policy and Action Standard*,<sup>4</sup> to cover both ex-ante and ex-post review.

## 1.5 Key recommendations

The guide includes key recommendations that are recommended steps to follow when preparing for, pursuing or conducting technical review of an impact assessment. The key recommendations are directed towards the technical reviewer, to help them conduct technical reviews that are consistent with this guide, and based on the principles of ethical conduct, fair presentation, due professional care, independence and an evidence-based approach.

Key recommendations are indicated in subsequent chapters by the phrase “It is a *key recommendation* to ...”. All key recommendations are also compiled in a checklist at the beginning of each chapter.

<sup>4</sup> WRI (2014).



Technical reviewers who want to follow a more flexible approach to accommodate different capacities can use the guide without adhering to the key recommendations. The *Introduction to the ICAT Assessment Guides* provides more information about how and why key recommendations are used within the ICAT assessment guides, and on following either the “flexible approach” or the “key recommendations approach” when using the documents. Refer to the *Introduction to the ICAT Assessment Guides* before deciding which approach to follow.

## 1.6 Limitations

Uncertainty is inherent in the assessment of policy impacts. The potential uncertainty, and variability across different impact assessments, depends on the methodologies, assumptions and data used for the estimates in an assessment report. It is important to consider the potential limitations relating to the accuracy of estimates in an assessment report:

- **Using results that are sufficiently accurate for the stated objectives.** This guide incorporates a range of approaches to allow users to manage trade-offs between the level of independence of the technical review and available resources and capacity, taking into consideration national circumstances. Depending on the approach used, the technical review may or may not be sufficient for all purposes. Given the uncertainties around the impact assessment of policies, the results of a technical review should be interpreted as a statement of the estimate of policy impacts. This can be expressed with or without a specified level of assurance.
- **Interpreting results.** Users should exercise caution when evaluating the results of a technical review. Differences in technical review conclusions may result from the extent to which key recommendations are followed or the approach to technical review. The guide is not designed to provide assurance for crediting mechanisms, although users can approach technical review as a complementary process to others that are designed to support crediting mechanisms.

## 1.7 Relationship to other resources

This guide builds and relies on various guidelines, standards and programmes, including International Organization for Standardization (ISO) standards, the Intergovernmental Panel on Climate Change (IPCC) *2006 IPCC Guidelines for National Greenhouse Gas Inventories*,<sup>5</sup> the *Policy and Action Standard*, the Clean Development Mechanism (CDM), the United Nations Framework Convention on Climate Change (UNFCCC) modalities and guidelines for international consultation and analysis, and the Verified Carbon Standard (VCS) Program.

## 1.8 Process for developing the guide

This guide has been developed through an inclusive, multi-stakeholder process convened by ICAT. The development is led by the Rainforest Alliance and Verra, who serve as the secretariat and guide the development process. The Technical Working Group (TWG) consists of experts and stakeholders from a range of countries identified through a public call for expressions of interest. The TWG contributed to the development of the technical content of the guide through participation in regular meetings and written comments. A Review Group provided written feedback on the first draft of guide. ICAT’s Advisory Committee, which provides strategic advice to the initiative, reviewed the second draft.

The second draft was applied by ICAT participating countries and other non-state actors to ensure that it can be practically implemented. The current version of the guide was informed by the feedback gathered from that experience and includes case studies from those applications.

More information about the development process, including governance of the initiative and the participating countries, is available on the ICAT website.<sup>6</sup>

All contributors are listed in the [Contributors section](#).

<sup>5</sup> The enhanced transparency framework states that “Each Party shall use the 2006 IPCC Guidelines and any subsequent version or refinement of the IPCC Guidelines agreed upon by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA)”.

<sup>6</sup> <https://climateactiontransparency.org>



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## 2 Key concepts, steps and principles

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*This chapter introduces key concepts in this guide, provides an overview of the steps involved in the technical review of assessment reports, and outlines the principles to help guide the technical review.*

### Checklist of key recommendations

- Base the technical review on the principles of ethical conduct, fair presentation, due professional care, independence and an evidence-based approach

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### 2.1 Key concepts

This section describes several key concepts that are relevant to the guide.

#### 2.1.1 Technical review

Technical review is a process that evaluates an assessment report in accordance with the criteria and scope of the review. The criteria and scope are discussed and agreed between the user and the technical reviewer. The criteria typically include evaluation of the assessment report for consistency with ICAT key recommendations, and the scope describes the elements of the policy and impact assessment that will be reviewed.

The technical review process results in a written technical review report and technical review statement. The statement contains the conclusion of the review. The report also provides findings on any issues identified, and suggestions for improvement for future impact assessments.

Technical review can be conducted in a similar way to the review processes under UNFCCC. The modality for review used by Parties not included in Annex I to the Convention (“non-Annex I Parties”) is international consultation and analysis (ICA). Through this review process, technical experts undertake a technical analysis of biennial update reports (BURs) in consultation with the non-Annex I Party and

through a facilitative sharing of views, resulting in a summary report.<sup>7</sup>

The modality for review for Annex I Parties is international assessment and review (IAR). Through this review process, Parties included in Annex I to the Convention participate in the review of GHG inventories, biennial reports and national communications. These are intended to satisfy “the need to have a cost-effective, efficient and practical review process that does not impose an excessive burden on Parties, experts or the secretariat”.<sup>8</sup>

The Cancun Agreements outlined different objectives for these two processes. IAR is to be conducted with the goal of promoting comparability and building confidence, whereas the main objective of ICA is to increase transparency of mitigation actions and their effects. In addition, IAR is to be a robust, rigorous and transparent process, whereas ICA is to be non-intrusive, non-punitive and respectful of national sovereignty.

This guide draws upon experience of GHG auditing and accreditation under programmes such as the CDM and voluntary carbon market programmes. To cover the range of objectives of potential users and circumstances, the approach to technical review within ICAT is a hybrid of ICA and IAR. The scope and steps of this guide seek to merge the rigour of IAR with the more facilitative and mentoring elements of ICA. Technical review in this guide aims to be a flexible learning experience that provides an opportunity to enhance performance over time using the feedback that comes through a review process.

#### 2.1.2 Verification

Verification is an empirical process of data collection and analysis carried out by an independent party

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<sup>7</sup> Biennial transparency reports (BTRs) established under the Paris Agreement, and their technical review process and multilateral consideration of progress will supersede BURs, ICA, IAR and biennial report requirements from December 2024.

<sup>8</sup> UNFCCC (2014).

with technical qualifications to determine (1) whether, or to what extent, an entity is meeting its obligations under a treaty or against a standard, or (2) that an assertion or claim made by an entity to show their compliance with a treaty or standard is true.

Multiple normative frameworks, standards and compliance mechanisms establish verification as a process that is fundamental to the reliability of what has been reported. Voluntary GHG, sustainability and supply chain programmes also use the verification process as a means for projects to independently demonstrate conformity to standards or requirements.

Verification has played an important role in compliance mechanisms by holding entities accountable, and allowing them to demonstrate and confirm progress. Independent verification of an entity's compliance with standards and requirements helps to ensure ongoing compliance, helps to identify potential compliance risk and complements the entity's internal monitoring system.

### 2.1.3 Assessment report and assessment statement

An assessment report, which is completed by the user, documents the assessment process, and the GHG, sustainable development and/or transformational impacts of the policy. Where technical review is pursued, the assessment report also documents all the information necessary to demonstrate how the impact assessment fulfils the key recommendations followed. Each ICAT assessment guide has a chapter on reporting that outlines the information that should be included in the assessment report. This includes a description of the policy; the assessment boundary; and methods, data and assumptions used in the assessment.

An assessment statement is a statement made by the user that summarizes the assessment process and the results of the impact assessment. An example assessment statement (abbreviated, for illustration only) might include the following: "The ICAT *Renewable Energy Methodology*, *Sustainable Development Methodology* and *Stakeholder Participation Guide* were used as the basis for the impact assessment. The impact assessment is consistent with the key recommendations within these documents. The key recommendations listed below were not followed, for the reasons given: ...".

### 2.1.4 Evidence

Evidence is the data sources, estimation and assessment methods or tools, and documentation used to estimate the impacts. Evidence supports the assessment report and the assessment statement. Evidence should be sufficient in quantity and appropriate in quality.

### 2.1.5 Technical review report and technical review statement

A technical review report, which is completed by the technical reviewer, documents the process that was followed to evaluate the assessment report in accordance with the criteria and scope of the review. It demonstrates how the impact assessment fulfils the key recommendations followed.

A technical review statement is a statement made by the technical reviewer that provides a summary of the review process and the reviewer's conclusion of the technical review. The statement includes the summarized conclusions of the technical review findings. If the technical reviewer determines that a conclusion cannot be reached, the review statement should cite the reason(s).

### 2.1.6 Materiality

Materiality is the concept applied to determine whether errors, omissions or misrepresentations in information could affect an assessment statement regarding GHG, sustainable development and/or transformational impacts. Materiality is a discrepancy or difference between the reported impacts and the impacts that would have been reported following the proper application of the assessment guide. It has quantitative and qualitative aspects.

When assessing quantitative materiality, a materiality threshold is established. Errors, omissions or misrepresentations are considered to be material if they cause the estimated results to be overestimated or underestimated by more than the threshold allows. Materiality of misstatements is considered individually and in aggregate (with all misstatements). Some items may also be material by their omission. For example, a user makes a small error in calculating the GHG emissions reductions of a policy. The error results in an overstatement of GHG emissions reductions by 12% compared with the estimate if the error had not been made. This discrepancy is large enough that GHG emissions reductions overstate those achieved beyond the established 10% materiality threshold.

This error is considered material, and the verifier would require the user to correct the error.

When assessing qualitative materiality, the reviewer determines whether the assessment conforms to the eligibility or applicability criteria of the guidance, methods, tools or requirements being applied. Some qualitative discrepancies can be considered material. The series of ICAT assessment guides provides a flexible approach and does not set eligibility or applicability criteria, but other external guidance, methods, tools or requirements that the user is following may do so.

In determining whether to apply the concept of materiality, users should consider the aspects that are needed to achieve their objectives. Although the materiality concept is commonly applied to GHG impact assessments, it can also be applied for sustainable development or transformational impacts.

### 2.1.7 Assurance

Assurance is a statement that gives confidence or certainty about the information that is reported in an impact assessment. In financial auditing, assurance refers to the practice of expressing a conclusion with a specified degree of confidence about the outcome of an assessment. Methods for providing assurance that have been successfully implemented by the financial sector – limited assurance, reasonable assurance and agreed-upon procedures – are described below. Limited and reasonable levels of assurance have also been used in GHG auditing.

Standards such as ISO 14064-3: “Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions” and ISAE 3000: “International standard on assurance engagements” identify two types of assurance engagements: limited assurance and reasonable assurance. Reasonable assurance is a higher level of assurance, and a positive form of expression is issued. The objective of a reasonable assurance engagement is to reach an opinion on whether the subject matter is materially free from misstatement. Limited assurance is a lower level of assurance, and a negative form of expression is issued. The objective of a limited assurance engagement is to reach a conclusion that is meaningful and not misstated based on the work performed. [Table 9.2](#) in [Section 9.3](#) provides example forms of expression for each of type of assurance.

The distinction between limited and reasonable assurance mostly comes down to the amount of

time and effort invested or evidence evaluated. The work required for a limited assurance review is substantially less detailed than for reasonable assurance. Another distinction between these methods is the amount of liability that the reviewer is willing to accept with their written report and opinion. The reviewer accepts less liability with limited assurance than with reasonable assurance.

Verification conducted to a limited or reasonable level of assurance is associated with a certain level of rigour that can be higher than verification conducted without a level of assurance. These types of assurance are useful where the data or information to be verified may generate a tradable asset (e.g. emissions trading programmes). The level of rigour involved in verification of tradable assets is particularly important because of the liability associated with such assets. Where users are assessing impacts – whether or not they result in tradable assets – it is suggested that the level of assurance, if selected, should apply to the data (e.g. quantified and monitored GHG emissions data), but not necessarily to following key recommendations.

For GHG, sustainable development or transformational impact assessments that do not lead to the generation of a tradable asset or unit, it may be impractical to apply the concepts of limited and reasonable assurance. In such cases, the user and reviewer can agree to a more flexible and tailor-made type of assurance known as agreed-upon procedures.

An agreed-upon procedures engagement is where a user engages an auditor to conduct a limited review of specific documents or operational processes. The nature and extent of the audit are agreed upon between the auditor and the user. The nature, timing and extent of the agreed-upon procedures can vary, because the user’s needs can vary. The user is responsible for ensuring that the procedures are sufficient, since they have the best understanding of their own needs. The auditor performs a review as per the agreed-upon procedures and provides factual findings, but does not provide an opinion of the findings. The recipients of the report form their own conclusions about the findings.<sup>9</sup>

<sup>9</sup> AICPA (2016).



## 2.2 Overview of steps

This guide is organized according to the steps a user and technical reviewer follow in conducting a technical review (see [Figure 1.1](#)). Part I provides an introduction to the guide and technical review concepts. Part II describes the different types of technical review, the factors to consider when selecting a type of review, and the qualifications of technical reviewers. Part III describes the steps in the technical review process, and is written for both the user and the technical reviewer.

Some elements within the steps of the technical review process are tasks, functions or decisions for the user, the reviewer, or both. To help both the user and the technical reviewer understand, prepare for, and undertake, a technical review, the guide notes where tasks or functions pertain to the user or the technical reviewer.

[Figure 2.1](#) illustrates the technical review process, and indicates where the user and technical reviewer are involved. The six steps of technical review are covered in [Chapters 5–9](#). The process of technical review begins after an ex-ante or ex-post impact assessment has been completed.

## 2.3 Technical review principles

The principles described in this section are intended to guide technical reviewers in reviewing assessment reports. Reviewers must exercise judgment, which affects the quality and result of each review. It is also important for them to respect a code of conduct. The application of principles is essential to guide the professional conduct of technical reviewers.

Five basic principles that are fundamental to GHG verification can also be applied to the technical review of sustainable development

**FIGURE 2.1**

### Overview of the technical review process



and transformational impact assessments.<sup>10</sup> It is a *key recommendation* for the reviewer to base the technical review on the principles of ethical conduct, fair presentation, due professional care, independence and an evidence-based approach, as follows:

- **Ethical conduct.** Demonstrate ethical conduct through trust, integrity, confidentiality and discretion throughout the technical review process. The user has to trust the technical reviewer's conclusions because they are not always witnessing all technical review activities. Within the technical reviewer's organization, any reviewer of the technical review team's work needs trust in the team's work since they cannot check whether *all* the findings presented in the technical review report are correct.
- **Fair presentation.** Reflect the technical review activities, findings, opinions and conclusions truthfully and accurately. Report significant obstacles encountered during the technical review and unresolved diverging opinions between members of the technical review team. This is also related to the principle of basing technical review conclusions on verifiable evidence (see "Evidence-based approach", below).
- **Due professional care.** Apply diligence and judgment in the technical review. Technical reviewers exercise care in accordance with the importance of the task they perform, and the confidence placed in them by users and other interested parties. Having the necessary competence is an important factor in practising due care. Technical reviewers should be aware of the potential consequences of their activities and the technical review results, and treat the user and the whole technical review process with respect and a deep sense of duty.
- **Independence.** Remain independent from the user to ensure that the technical review is impartial. An objective opinion from the technical review presumes independence of every individual in the technical review team. Individuals should be independent of the policy undergoing technical review,

and free from bias, conflict of interest and undue influence (see [Section 6.3](#) for more information on conflict of interest).

- **Evidence-based approach.** Use a rational method for reaching reliable and reproducible technical review conclusions in a systematic process. Verifiable evidence is empirical and objectively interpreted. At the same time, it should be kept in mind and communicated to the user that evidence used in a technical review can only be based on samples of the information available, since a technical review event is conducted during a finite period of time and with finite resources.

These principles apply equally to first-, second- and third-party technical review. However, the type of technical review will affect the level of independence, as discussed in [Chapter 5](#).

Consistent with the guidelines for ICA, the review process should be conducted in a manner that is non-intrusive, non-punitive and respectful of national sovereignty.<sup>11</sup> The principles above can help to ensure that technical reviewers maintain sensitivity to these concerns.

<sup>10</sup> Principles are adapted from ISO 14064-3: "Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions" and ISO 19011: "Guidelines for auditing management systems".

<sup>11</sup> UNFCCC (2011).



# PART II

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## Overview of technical review

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## 3 Types of technical review

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*This guide provides three options for conducting a technical review. This chapter explains the three approaches so that the user can select the type of technical review that fits their objectives.*

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### 3.1 Introduction to types of technical review

The objectives of the technical review will inform whether first-, second- or third-party technical review is most appropriate. The distinctions correspond to the varying levels of independence between the user and the technical reviewer:

- **First party.** This type of technical review is carried out by the user – that is, the same government agency that is responsible for the implementation of the policy and/or the impact assessment.
- **Second party.** This type of technical review is performed by a person or organization that has an interest in, or affiliation with, the user.
- **Third party.** This type of technical review is performed by a person or organization that is independent from the user, in terms of commercial, financial and legal interests.

The credibility provided by a technical review will depend, to an extent, on the amount of independence of the technical reviewer from the user. The greater the autonomy of the technical reviewer – that is, separation between the entity responsible for the technical review and those responsible for the design, implementation and assessment of a policy – the greater the independence in the approach to technical review. As discussed later in this chapter, several factors influence the user's desired level of independence in a technical review.

The next three sections describe the types of technical review based on the entity selected by the user to conduct the technical review. First-, second- and third-party technical reviewers should follow similar procedures when conducting a technical

review, as the procedures are as important as who performs the technical review.

The technical review process determines whether ICAT key recommendations were followed in preparing the impact assessment, and were implemented in a manner consistent with applicable ICAT assessment principles. Reasonable methods and assumptions should also be applied in the impact assessment.

The type of technical review pursued should be closely linked to the purpose of the review. For some, technical review will be an evaluative review process only. For others, technical review may be sought to provide a greater level of confidence in the results of the impact assessment, perhaps for an external audience. In all cases, technical review should be a cooperative, iterative process that provides feedback, and allows improvement in impact assessment and reporting practices.

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### 3.2 First-party technical review

First-party technical review is done by the user – the government agency leading the implementation and/or assessment of impacts of the policy. This can be seen as a self-review. This approach may be desirable for users who are interested in reviewing an ex-ante impact assessment or an early-stage review of progress of implemented policies. This type of review is similar to internal auditing, quality control procedures or other systems used as a means of internal improvement.

Several possible scenarios would be characterized as first-party technical review, such as where the user has authority to monitor and report the impacts of a policy and is also responsible for the technical review of the assessment report. In this case, the team formed to conduct the technical review comes from the same agency as the user. Reviewers from the user organization will have more familiarity with the review objectives, which can be seen as a benefit of a first-party review.

Another possible scenario is where one government agency implements the policy and has the authority to monitor and report the impacts, and another government agency has responsibility for the technical review. This would be considered first-party review if the agency conducting the technical review has not been purposely established by the government as an independent inspector or auditor. The systems in place to create an independent inspection or auditing function within a government determine whether technical review conducted by a different public sector agency would be considered first or second party.

[Box 3.1](#) provides examples of first-party technical review.

### 3.3 Second-party technical review

Second-party technical review is done by an entity that is not the responsible government party that is leading the implementation and/or assessment of impacts of the policy. It may be either an external entity, or a government regulator or inspection/

#### BOX 3.1

##### Examples of first-party technical review

###### United States audit of an internal environmental management system

The United States Environmental Protection Agency (U.S. EPA) carried out an internal audit to assess matters pertaining to Region 7's Environmental Management System (EMS). The scope of the internal audit was to determine whether the system was conforming with the guidance in ISO 14001: "Environmental management systems". The EMS was also checked to see whether it was meeting internal performance objectives, and was being adequately implemented and maintained. Data were collected for Region 7's senior management concerning the suitability, adequacy and sufficiency of the EMS.

The audit team was made up of government employees, including auditing experts, EMS experts, and professionals directly and indirectly affiliated with the EMS. However, staff directly involved with Region 7's EMS were not part of the audit team. The audit team leader and their assistant were required to complete the American National Standards Institute – American Society for Quality (ANSI-ASQ) National Accreditation Board EMS auditing course to ensure knowledge in the auditing processes and EMS particular to U.S. EPA.

###### Ghana review of its first biennial update report

In the submission of the first BUR for Ghana, the country requested support from several experts to help them with a peer review of specific sections of the national GHG inventory. This peer review helped Ghana to improve and amend the inventory before it was made public as part of the BUR.

This was considered a first-party rather than a second-party review because the organization that provided the professional experts who led the review – the Environmental Protection Agency (EPA) of Ghana – is established as an agency of the Ministry of Environment, Science, Technology and Innovation, which was responsible for submitting the BUR.<sup>12</sup> The EPA of Ghana is responsible for protecting and improving the environment, and has both inspection and enforcement roles.

Because the EPA was founded to have an independent oversight function, as part of government, the review would also not be considered to be a third-party review.

###### United Kingdom achievement of carbon budgets

The United Kingdom *Climate Change Act (2008)* established the target of reducing GHG emissions by at least 80% by 2050. The progress is monitored on an annual basis against carbon budgets that cover five-year periods. The Department of Business, Energy and Industrial Strategy (DBEIS) oversees the actions necessary to monitor and report, in addition to promoting the enhancement of mitigation actions in the different sectors. The Department for Transport (DfT) monitors the GHG impacts of transportation policies in the country, and works to enhance GHG reductions achieved by transportation policies and actions. DfT uses data from the national GHG inventory developed by Ricardo Energy & Environment and compiled by DBEIS to monitor the sectoral progress and reports to DBEIS. In this sense, a first-party review would take place when DBEIS reviews the data provided by DfT on the GHG effects of transportation policies in the country.

<sup>12</sup> Republic of Ghana (2015).

auditing body with an interest in, or affiliation with, the performance or results of the policy.

In international auditing, second-party auditing is mostly associated with the ISO 9000 standards<sup>13</sup> and refers to an external audit of a supplier by a customer or by a contracted organization on behalf of a customer. However, these types of audits or evaluations can be done by regulators or any other external party that has a formal interest in an organization.<sup>14</sup>

Second-party review provides a greater level of independence between the user and reviewer than first-party review, but a lower level of independence than third-party review. This middle level of independence results from the separation that exists between the user and a second party, although second parties still have some affiliation with, or interest in, the user and/or the policy implemented by the user.

The two most common scenarios of second-party technical review are review by:

- an internal auditor general or independent regulatory body of the government
- a consultant or professional expert who has an interest in, or affiliation with, the policy design or implementation, but is not the actual party responsible for design or implementation.

In the first scenario, users would work with an institution set up as independent of the government. Many countries have an internal audit body, whose offices may have titles such as Auditor General, Supreme Audit Institution, Comptroller General, or Chief Financial Officer. The auditor or comptroller general is empowered to improve accountability in fiscal or fiduciary matters through internal auditing and reporting on the government's operations. Institutionally, although part of the government they serve, these auditors are typically given independence or autonomy from the executive that is legal, administrative, contractual and budgetary.

The government entities that perform such audits are typically affiliated with the International

Organization of Supreme Audit Institutions (INTOSAI). Guidance for public sector auditors on governance, oversight and internal controls is provided in the INTOSAI framework of International Standards of Supreme Audit Institutions (ISSAI Framework).

This form of auditing in the public sector is well established. The primary function of auditors is to oversee elected and public officials in the receipt, disbursement and application of public funds; and to detect or deter corruption. The scope of the auditing agency could be extended to conduct technical review of performance related to public policies. Within INTOSAI, a Working Group on Environmental Auditing aims to assist supreme audit institutions (SAIs) in acquiring a better understanding of the specific issues involved in environmental auditing, facilitate exchange of information and experience among SAIs, and publish guidelines and other informative material for their use. In this manner, such SAIs are already using audit procedures beyond financial audits and relating to environmental protection policies.<sup>15</sup>

In the second scenario above, users hire a consultant, such as an adviser or contractor to government, who does not have responsibility for the implementation and/or assessment of impacts of the policy. However, the consultant may be affiliated with a trade or industry association, and the policy results that they will be reviewing are within, or affected by, the sector where they have a commercial or shared interest with the user.

In both scenarios, reviewers have a good understanding of the organization or government responsible for the assessment report, as a result of their prior affiliation with the user. Second-party reviewers may also have strong technical expertise and understanding of the policy that was assessed, depending on their affiliation with the user. Second-party technical review allows close collaboration between the user and reviewer where independence is less of a priority. This type of collaboration encourages learning and improvement through the technical review process.

[Box 3.2](#) provides an example of second-party technical review.

<sup>13</sup> The ISO 9000 family addresses various aspects of quality management. The standards provide guidance and tools for companies and organizations that want to ensure that their products and services consistently meet customers' requirements, and that quality is consistently improved.

<sup>14</sup> ISO 9001 is available at: [www.iso.org/standard/62085.html](http://www.iso.org/standard/62085.html).

<sup>15</sup> For more information on WEGA, see [www.environmental-auditing.org](http://www.environmental-auditing.org).



**BOX 3.2****Example of second-party technical review****Brazil Federal Accountability Office and Auditing of Forest Concessions**

The Brazilian Federal Court of Accounts (TCU – Brazil) is the external control institution of the federal government that supports the National Congress with overseeing the budget and financial execution. The TCU is responsible for accounting, financial, budget, performance and property oversight of public bodies and entities of the country for legality, legitimacy and best value.<sup>16</sup>

In addition to financial audits, the TCU has audited federal forest concession processes, whereby the public power delegates to private enterprises, for a fixed term, the right to practise sustainable forest management for the exploitation of products and services (i.e. timber, non-timber products and, in some cases, tourist activities in the conservation unit). The main conclusions of the audit revealed that there are deficiencies in the institutional and legal framework that may be negatively impacting the implementation and consolidation of federal forest concessions. Of concern was the lack of coordination among the various actors involved in the forest concession process and the informal operation of the units responsible for the concession under the Brazilian Forest Service.

As a deliberation, the TCU instructed the Brazilian Ministry of the Environment and the Brazilian Forest Service to present an action plan for adopting measures to remedy the lack of clarity and coordination among the various actors in the forest concession process. The main benefit expected from this audit is an improvement in the performance of the various players involved in the concession process and greater transparency in the rules of the process.<sup>17</sup>

In this sense, the TCU undertakes a second-party review process, as it is part of the Brazilian Government, yet is authorized to evaluate legality and impose penalties when necessary.

**3.4 Third-party technical review**

Third-party technical review is probably the most well known of the three types of technical review. Thousands of standards for goods, services and products across all economic sectors require conformity assessment to be conducted by third-party entities, such as independent accounting, engineering or policy analysis organizations, or accredited verification bodies. There are well-established standards and accreditation requirements for verification, and certification programmes that support and oversee the practice of such entities.

Two kinds of third-party technical review are described in this section: independent verification, and technical expert review or analysis. The two kinds stem from the process of carbon project validation/verification and the process of technical expert review within UNFCCC, notably the IAR and ICA processes. Both processes use third-party entities to conduct evaluations.

Implementation of the IAR and ICA processes began in 2014; therefore these processes are less established than the project verification process. However, both processes include expert-conducted technical review or analysis of reports from countries. UNFCCC has an established training programme for these processes. Upon successful completion of the programme, experts are eligible to be part of the team of technical experts and to undertake ICA.

Third-party technical review provides a greater level of independence than first- or second-party review, given that there is no affiliation or interest between the user and reviewer. This can allow reviewers to conduct the review with a higher degree of objectivity, leading to increased credibility of the assessment report to external stakeholders.

The technical expert review or analysis approach, as it is designed in the IAR and ICA processes, is more facilitative. Its primary goal is to enhance transparency and identify areas for improvement, as well as identify capacity-building needs (in the case of ICA). In contrast, the independent verification process is focused on systematically identifying areas for improvement. Verification is less facilitative in that the review team does not provide concrete suggestions for how to address the findings.

<sup>16</sup> Tribunal de Contas da União (2017).

<sup>17</sup> Tribunal de Contas da União (2014).

### 3.4.1 Independent verification

Independent verification conducted by an independent entity that is a commercial or non-profit firm is the most common type of third-party review. Often these entities hold accreditation to certification programmes and verification standards, such as:

- the CDM, for which entities are accredited as “designated operational entities” (DOEs) by the CDM Executive Board to validate project design and verify whether implemented projects have achieved planned GHG emissions reductions
- voluntary and mandatory reporting programmes, for which firms receive accreditation to ISO 14065<sup>18</sup> by an accreditation body and are referred to as “validation/verification bodies” (VVBs).

The terms “DOE” and “VVB” are similar in concept and reflect a similar level of independence. Verification firms that operate as DOEs and VVBs are experienced in selecting and managing teams with the appropriate competencies for the scope

of the review, and have management systems for verification that could be used for the purposes of technical review as set out in this guide.

Although independent verification firms conduct the work and are expected to strictly safeguard against conflict of interest, they do enter into a commercial relationship with the entity pursuing verification or technical review. Firms are typically chosen based on their knowledge and experience, technical expertise, and/or low levels of potential personal or institutional conflict of interest. Most countries have DOEs or VVBs that perform independent verification. Performance of verification services is typically done on a fee-for-service basis.

[Box 3.3](#) provides an example of third-party technical review.

### 3.4.2 Technical expert review or analysis

Technical expert review or analysis is where an individual or team with experience and knowledge in the relevant sector or policy, but not within the same agency as the user, conducts the technical

## BOX 3.3

### Example of third-party technical review by an independent verification firm

Entergy Corporation is a company based in the United States that generates and distributes electric power and natural gas. The company is a major GHG emitter, emitting 40,195,784 tonnes of carbon dioxide equivalents (tCO<sub>2</sub>e) in 2014, for which it sought verification. Although this example is of a corporation and not a government, the scale of the operations could be comparable to some users’ anticipated impacts.

The company sought independent third-party verification for internal and external purposes – internally, to track reduction targets, and for annual reports and corporate social responsibility reports; and externally, to voluntarily report to the American Carbon Registry, the Carbon Disclosure Project (now CDP) and the Dow Jones Sustainability Index. Seven team members from the consultancies ICF and Cventure conducted verification with a limited level of assurance on Entergy’s 2014 GHG inventory. The team consisted of one lead technical reviewer, three associated technical reviewers, two technical experts and one internal peer reviewer. The verification was conducted from December 2014 to March 2015.

The company set its materiality threshold for a limited level of assurance verification at 10% for the corporate inventory. The concept of materiality for this purpose was defined in the context of the overall uncertainty in the reported data. Although materiality is not the same as uncertainty, the company approached the quantity reported with the potential for uncertainties and/or associated errors.

The verification report found no serious misstatements or discrepancies in Entergy’s 2014 GHG inventory. It was found that Entergy did not provide sufficient supporting data and methodological references for three emissions sources; however, these only comprised about 2.3% of the total reported emissions, within the established threshold of 10%. Therefore, the audit report’s conclusion was to issue a statement of limited assurance for the reported emissions.<sup>19</sup>

<sup>18</sup> Available at: [www.iso.org/standard/60168.html](http://www.iso.org/standard/60168.html).

<sup>19</sup> ICF International (2015).

review. Technical expert review teams are typically appointed either directly by the user or by a multilateral or supranational agency that oversees a reporting programme. These agencies typically draw from a recognized roster of experts, who can come from governments, international organizations, non-governmental organizations (NGOs) or research institutes. Examples are as follows:

- **UNFCCC Roster of Experts.** These experts serve in their own capacity as independent reviewers. The UNFCCC secretariat manages a group of nearly 150 experts who contribute to a number of processes. These processes include reviews of annual submissions of GHG inventories and supplementary information under the Kyoto Protocol submitted by Annex I Parties, reviews of national communications and biennial reports submitted by Annex I Parties, and technical analysis of BURs submitted by non-Annex I Parties. In addition, experts contribute to the technical assessment sessions of proposed forest reference emissions levels for the implementation of the UNFCCC Cancun Agreement<sup>20</sup> to reduce emissions from deforestation and forest degradation (REDD+), submitted on a voluntary basis by developing country Parties.

- **Forest Carbon Partnership Facility (FCPF) roster of experts.** This roster is maintained by the Facility Management Team (FMT). The experts can be selected to serve on the Technical Advisory Panel (TAP) as needed, offering a wide range of technical and policy expertise and knowledge of specific country conditions. The FMT invites the TAP to review Readiness Preparation Proposals (R-PPs) submitted by REDD-eligible countries, for completeness and quality in meeting the criteria for R-PP set out in the FCPF Information Memorandum. The TAP review of a country's R-PP is led by an expert who serves as the lead reviewer. To achieve consistency, each expert selected to review an R-PP completes their review according to a standard template, and the lead reviewer is then responsible for synthesizing the various individual reviews into a summary panel-wide review. The summary review is made public, to encourage transparency of the FCPF process.

Members of these expert rosters are often required to pass a test to demonstrate their expertise in the relevant sector and process.

[Box 3.4](#) provides an example of technical analysis.

### BOX 3.4

#### Example technical analysis of South Africa's first biennial update report

A Team of Technical Experts (TTE) was organized to analyse South Africa's first BUR. The TTE was composed of six experts, and three members from the UNFCCC Secretariat provided administrative support to the TTE. The six experts are members nominated to the UNFCCC Roster of Experts and have successfully completed the training programme run by the Consultative Group of Experts. The members of the TTE were not involved in developing South Africa's first BUR. The team was co-led by two members of the TTE: one from an Annex I Party and another from a non-Annex I Party.

The members of the review team were obliged not to act as representatives of their respective nations. This was to ensure that they acted in a manner that was non-intrusive, non-punitive and respectful of national sovereignty, in accordance with the objective of modalities and guidelines of the ICA process.

During the technical analysis of the BUR, the TTE identified the extent to which the BUR included the key elements of information required, and identified constraints and gaps, and related financial, technical and capacity-building needs. The results of the analysis were provided in a summary report. The summary report was reviewed, commented on and approved by the Party responsible for the BUR.

<sup>20</sup> UNFCCC (2010).



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## 4 Qualifications of technical review teams

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*This chapter provides guidance to users and technical reviewers on the qualifications that are important to have in a technical review team. The quality of a technical review process and the confidence one can have in its results rely on the competence of those conducting the technical review.*

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### 4.1 Competencies of technical review teams

Individual or technical team competence consists of a mix of knowledge and skills. “Knowledge” refers to the understanding, proficiency and mastery of the subject area to be reviewed. It stems from the education, professional experience and training of the technical reviewer. “Skills” refer to the qualities of enquiry and analysis the technical reviewer employs. Such attributes include active listening, systematic review techniques, open-ended questioning, memory and recall, and a professional manner.

This section describes the competencies to be considered when selecting a technical reviewer or determining the composition of a technical review team. Having an understanding of these competencies will also enable the user to prepare for technical review. Technical reviewers should possess both knowledge and skills across a range of subject areas, as discussed in the sections below.<sup>21</sup>

#### 4.1.1 Technical review techniques

To apply techniques appropriate to different technical reviews, and conduct reviews in a consistent and systematic manner, a technical review team or team member should be able to:

- plan and organize their work effectively
- conduct a technical review within an agreed time frame
- prioritize and focus on matters of significance

- collect information through effective interviewing and observation, and review of documents, records and data
- understand the use, appropriateness and consequences of sampling techniques
- ascertain the sufficiency, reliability and appropriateness of evidence to support technical review findings and conclusions
- prepare complete, quality and timely technical review reports
- maintain the confidentiality and security of information, as agreed
- maintain ethics standards and impartiality
- communicate effectively, in local language or through an interpreter.

#### 4.1.2 Management systems, organizational procedures and data

To comprehend the scope of the technical review, and review the data supporting an impact assessment, and the application of guidance, tools and methodologies within a particular organizational structure or system, a technical review team or team member should have knowledge and skills relating to:

- quality or environmental management systems, applicable procedures or other management systems of the agencies or organizations involved
- information systems and technology for authorization, security, distribution and control of documents, records and data
- interaction between the components of management, data and knowledge management systems
- differences between, and priority of, supporting documents and data for the impact assessment

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<sup>21</sup> Adapted from ISO 19011 ([www.iso.org/standard/50675.html](http://www.iso.org/standard/50675.html)).

- organizational structure, governance, functions and relationships, including inter-agency relationships
- governance or business processes, and cultural and social customs.

#### 4.1.3 Subject matter

To review specific impacts, make qualitative judgments and review the consistent application of ICAT assessment principles, a technical review team or team member should have knowledge and skills in relevant subject matter disciplines relating to:

- GHG estimates, accounting, modelling and measurement
- sustainable development disciplines in social and natural sciences
- impact monitoring and evaluation, policy analysis, economic analysis and statistics
- language(s) relevant to the country and the assessment report.

#### 4.1.4 Policy, law and regulation

To work within, and be aware of, the requirements that apply to the user, a technical review team should have knowledge and skills relating to:

- national, regional and local policies, laws and regulations
- international treaties and conventions
- other applicable agreements.

#### 4.1.5 Team leader specialization

Team leaders will require specific experience and training to manage technical review teams. A technical review team leader should be able to:

- plan the technical review and make effective use of resources during the review
- represent the technical review team in communications with clients
- organize and direct members of the technical review team

- provide direction and guidance to technical reviewers-in-training
- lead the technical review team to reach the review conclusions
- work in varying cultural contexts
- prevent and resolve conflicts
- prepare and complete the technical review report, considering the full technical review team's findings
- form technical review teams appropriate to the assignment – for example, a team that includes a professional accountant familiar with the reporting entity and subject matter experts for the specific environmental attributes to be assessed (e.g. oil and gas expert, professional engineer, professional forester).

## 4.2 Training, certification and accreditation

The competencies discussed in [Section 4.1](#) can be demonstrated through training, certification or accreditation. There are rigorous training or certification programmes for technical experts or independent consultants who can serve as reviewers, as well as various programmes for the accreditation of technical reviewers, auditors and verifiers. Hiring firms and individuals with training, certification or accreditation, such as those described below, can help ensure that the technical review team has the necessary knowledge and skills to achieve the review objectives. Review objectives should inform the type of training, certification or accreditation required for a review team. For example, users that need to demonstrate results to a donor agency may be required to use a review team with a particular accreditation.

Accredited entities and bodies have systems for training, oversight and continual improvement that are important to maintain and enhance the competence of professionals who conduct technical review. Some programmes that maintain a roster of experts also have systems that can strengthen the competence of reviewers.

Training, certification and accreditation are particularly important for users pursuing second- or third-party technical review. Where the user's

objectives include providing a greater level of confidence in the results of the impact assessment, it is important for an external audience to have confidence in the review team's qualification, training, certification and accreditation.

#### 4.2.1 UNFCCC Roster of Experts

The UNFCCC Roster of Experts<sup>22</sup> is a list of technical experts who are nominated by their respective governments through the National Focal Points of the Parties under UNFCCC. The experts can contribute to the review of national GHG inventories, national communications and BURs upon completion of the UNFCCC training programme. The training programme covers three sets of training materials: provisions on conducting technical analysis of BURs under the ICA process, background materials covering methods and science on key themes addressed in BURs (i.e. mitigation, GHG inventory, needs and support, and REDD+), and provisions on technical analysis of a technical annex related to REDD+ activities. Through the training programme, the UNFCCC helps to ensure that the technical experts have the necessary knowledge and skills for the relevant review processes.

#### 4.2.2 Accredited validation/verification bodies

International standards have been established for the competence of entities or bodies conducting GHG validation and verification. ISO 14065: "Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition" establishes requirements for bodies that undertake GHG validation or verification. For example, the standard requires that such bodies establish and maintain a procedure to manage the competence of its personnel and teams appointed for each validation or verification. In addition, ISO 14066: "Competence requirements for greenhouse gas validation teams and verification teams" contains competence requirements for the benefit of GHG programme administrators, regulators, and validation and verification bodies.

Relevant accreditation programmes include the following:

- **CDM.** The CDM Accreditation Panel approves designated operational entities, which are listed on the CDM website.<sup>23</sup>
- **International and national accreditation and standards organizations.** Such organizations maintain lists on their websites of accredited validation/verification bodies, certification and inspection bodies, and other personal or company-level accreditations. [Table 4.1](#) provides examples of such organizations.

Many of these organizations manage accreditation programmes relating to GHG programmes and specific product certifications. However, for broader sustainable development impacts, reviewers with relevant expertise will be needed. Users should ensure that their technical reviewer has proficiency across the sectors, specializations or scopes relevant to the technical review.

#### 4.2.3 Certifications, registrations or licences

Individual experts may hold certifications, registrations or licences within their professions. These may be required to practise within their field, or may reflect common practice to demonstrate a specific set of skills or competencies appropriate to their discipline. For example, many jurisdictions require professional foresters, biologists and many types of engineers to be registered and licensed. This usually requires that they pass an exam, stay current in dues and maintain activity in their field. Often, there are continuing education, training and crediting programmes, as well as professional societies or associations that reinforce and maintain professional competencies. In addition, within the auditing profession, there are accredited programmes for personal certification. Under these programmes, individuals are assessed by a certification body to attest that their skills fit with the competencies or requirements for the tasks they perform in their work, such as auditing.

<sup>22</sup> More information on the UNFCCC Roster of Experts is available at: [www4.unfccc.int/sites/roe/Pages/Home.aspx](http://www4.unfccc.int/sites/roe/Pages/Home.aspx).

<sup>23</sup> Available at: <https://cdm.unfccc.int/DOE/list/index.html>.



**TABLE 4.1****Examples of accreditation and standards organizations**

Organization	Description	Link
Assurance Services International (ASI)	An international accreditation service for voluntary sustainability standards owned by the Forest Stewardship Council A.C.	<a href="http://www.accreditation-services.com">www.accreditation-services.com</a>
American National Standards Institute (ANSI)	A not-for-profit accreditation service in the United States	<a href="http://www.ansi.org/accreditation/default">www.ansi.org/accreditation/default</a>
Comite Francais d'Accreditation (COFRAC)	The non-profit accreditation service in France	<a href="http://www.cofrac.fr/fr/home">www.cofrac.fr/fr/home</a>
Deutsche Akkreditierungsstelle (DAKkS)	The non-profit national accreditation body for the Federal Republic of Germany	<a href="http://www.dakks.de">www.dakks.de</a>
Dutch Accreditation Council (RVA)	The non-profit, independent government agency that answers to the Minister for Economic Affairs and serves as the national accreditation body of the Netherlands	<a href="http://www.rva.nl/en">www.rva.nl/en</a>
General Coordination for Accreditation (CGCRE)	The government agency that serves as the national accreditation body of Brazil	<a href="http://www.inmetro.gov.br">www.inmetro.gov.br</a>
Instituto Nacional de Normalización (INN)	The non-profit national accreditation body for Chile	<a href="http://www.inn.cl">www.inn.cl</a>
International Accreditation Service (IAS)	A non-profit accreditation body in the United States	<a href="http://www.iasonline.org">www.iasonline.org</a>
International Organic Accreditation Service (IOAS)	A non-profit certification organization for sustainability standards	<a href="http://www.ioas.org">www.ioas.org</a>
Joint Accreditation System of Australia and New Zealand (JAS-ANZ)	A not-for-profit accreditation organization for Australia and New Zealand	<a href="http://www.jas-anz.org">www.jas-anz.org</a>
Entidad Mexicana de Acreditación (EMA)	A private, third-party accreditation body in Mexico	<a href="http://www.ema.org.mx/portal_v3">www.ema.org.mx/portal_v3</a>
Social Accountability Accreditation Services	A non-profit organization that enables demonstration of compliance with social accountability standards	<a href="http://www.saasaccreditation.org/organization">www.saasaccreditation.org/organization</a>
South African National Accreditation System (SANAS)	The national authority for accreditation in South Africa	<a href="http://www.sanas.co.za">www.sanas.co.za</a>
Standards Council of Canada (SCC)	The government organization for national standardization and accreditation in Canada	<a href="http://www.scc.ca/en">www.scc.ca/en</a>
Swiss Accreditation System (SAS)	The independent government entity for national accreditation in Switzerland	<a href="http://www.sas.admin.ch/sas/en/home.html#">www.sas.admin.ch/sas/en/home.html#</a>
United Kingdom Accreditation Service (UKAS)	The non-profit national accreditation body for the United Kingdom	<a href="http://www.ukas.com">www.ukas.com</a>



# PART III

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## Technical review process

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## 5 Determining the objectives, criteria, scope and type of technical review

*Technical reviews are structured to meet the specific objectives of the user. They can focus on learning and improvement, increasing transparency of reported impact assessments, or both. Determining the technical review objectives is an important first step, since the design of the technical review will be guided by the identified objectives. Once the objectives are established, the appropriate criteria, scope and type of technical review can be determined.*

### 5.1 Determine the objectives of the technical review

Users should determine the objectives of the technical review before beginning the technical review process. The type of technical review pursued will depend on these objectives.

Objectives for conducting technical review of GHG, sustainable development and transformational impact assessments of policies fall into three categories, as follows:

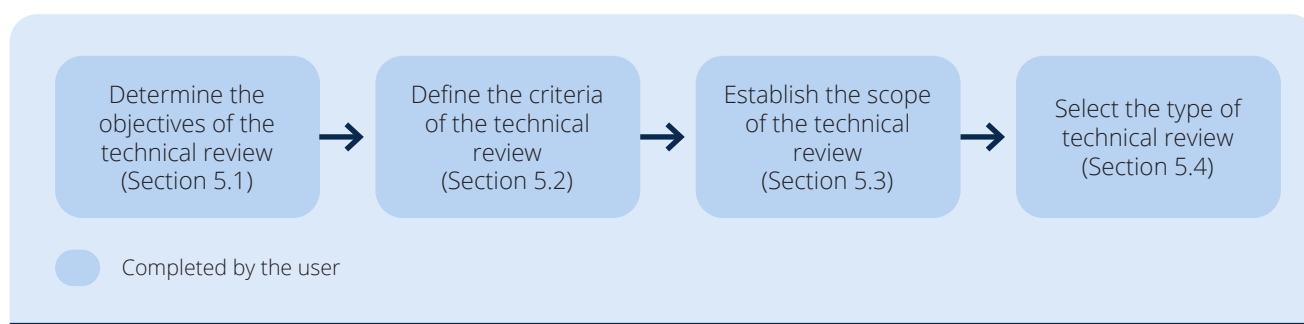
- **Planning and evaluation of policies.** Users may pursue technical review as a tool to foster learning and continual improvement, with the following objectives in mind
  - » Support improved selection, design and implementation of policies through a more

rigorous understanding and evaluation of their impacts.

- » Enhance the user's knowledge, skills and processes for impact assessment and reporting, by facilitating learning and knowledge transfer within the organization.
- **Reporting the impacts of policies.** This set of objectives is more oriented to an external audience and includes the following objectives
  - » Increase transparency and confidence in the reported impacts of policies, including under the Paris Agreement's enhanced transparency framework.
  - » Demonstrate results to donor agencies and financial institutions who provide funding or financing for policies (i.e. under pay-for-performance arrangements).
  - » Build and broaden support for policies among stakeholder groups.
- **Supporting consistency in the assessment of a single policy over time and comparability of the reported impacts of different policies.** This higher-level objective aims to foster greater trust and ambition in climate policies worldwide through transparency and credible reporting.

FIGURE 5.1

#### Overview of steps in the chapter



Users select one or more of these objectives, depending on the stage of the policy cycle in which they are pursuing technical review and their objectives in using the related ICAT assessment guides. Technical review can occur before, during or after policy implementation. Determining when to conduct the technical review also depends on the stage of policy design and implementation, and the objectives for technical review.

For those seeking to improve design, internal reporting or quality control in the implementation of the policy, technical review may take place on the ex-ante assessment report. Where users seek to meet obligations and facilitate transparency of private or public financing of climate policies, technical review can be conducted on the ex-post or ex-ante assessment report. Given the linkage between when technical review is conducted and the objectives of technical review, determining when to conduct the technical review can occur simultaneously with establishing the objectives of the technical review.

Determining when to carry out a technical review involves other considerations, such as the completeness, readiness and scope of the assessment report; capacity and preparedness of staff to facilitate the review and work with a technical review team; and any other budgetary or operational constraints.

The frequency of technical review is flexible. It depends on how frequently impact assessments are done. Technical review can take place annually, every two years, every five years or with some other frequency, based on the anticipated lifetime of the GHG, sustainable development and/or transformational impacts of a policy, and other reporting obligations (e.g. reporting requirements under the Paris Agreement's enhanced transparency framework). Where a technical review schedule can be established, users should provide a rationale and the intent for setting and meeting the schedule.

Once the objectives of technical review are established, the criteria and scope of the review can be determined.

## 5.2 Define the criteria of the technical review

Users should define the criteria of the technical review. The purpose of a technical review is to evaluate the assessment report in accordance with the criteria and scope of the review ([Section 5.3](#)

provides more information about scope). The central step of technical review is the evaluation of the assessment report for consistency with the criteria. The criteria consist of the key recommendations that were followed by the user and any other criteria.

### 5.2.1 Key recommendations

Key recommendations are set out in the relevant ICAT assessment guides. The assessment statement and the assessment report list the key recommendations followed by the user, and explain and justify why any key recommendations were not followed. All applicable key recommendations in the ICAT assessment guides used in the impact assessment are considered criteria. The key recommendations selected and followed by the user need to be sufficient to establish baselines, monitor and report on performance, and determine uncertainty of the data used.

Each ICAT assessment guide includes a set of principles and a key recommendation stating that the principles should be applied throughout the impact assessment. Therefore, the principles are also considered criteria, and reviewers should ensure that all key recommendations are applied in a way that is consistent with the principles.

### 5.2.2 Other criteria (if relevant)

Other criteria that can be reviewed include results and the methods used to reach the results. To facilitate technical review of results and methods, the assessment report should list the results clearly (e.g. the estimated GHG emissions reductions achieved, or jobs created) and explain how the relevant methods were followed. The assessment statement should summarize these results and explanations.

The data, assumptions, methodologies, models and tools used to produce the quantified results are examined in greater depth than if the criteria of the technical review are only the key recommendations.

The ICAT assessment guides provide guidance on how users can transparently demonstrate how the quantified results were determined. Where quantified results are reviewed, all evidence that supports the results should be provided in the assessment report.



Examples of other criteria that can be evaluated through technical review include:

- **conditions before activity initiation** – the described conditions before the policy was initiated
- **baseline scenario** – the described baseline scenario and estimated impacts of the baseline, including the assumptions, parameters and procedures for determining and estimating the scenario and the impacts
- **methodology or tool followed** – the methodology used for calculating, estimating or assessing impacts, and the selected indicators and parameters used to estimate results
- **monitoring plan** – the plan that describes the system for obtaining, recording, compiling and analysing data and information needed for tracking performance and estimating impacts, including the indicators and parameters selected for monitoring, any sampling approaches, frequency of measurement, means of data quality assurance and control, record keeping, and roles and responsibilities
- **monitoring report** – the report that describes the data and information that were collected to quantify the impacts of the policy, including details to demonstrate that the monitoring report follows a monitoring plan, and any descriptions and justifications for deviations from, or modifications to, the plan
- **estimated GHG emissions reductions or removals** – the estimated GHG emissions reductions or removals, including the methodology followed, the selected key performance indicators and parameters used to estimate GHG emissions reductions or removals, the use of default values, and any descriptions and justifications for deviations from, or modifications to, the methodology followed
- **estimated sustainable development impacts** – the estimated sustainable development impacts (e.g. access to clean water, air quality, jobs created, infant mortality rates), including the methodology followed, the indicators and parameters used to estimate impacts, the use of default values, and any descriptions and justifications for

deviations from, or modifications to, the methodology followed

- **uncertainty** – the quantified estimate or qualitative description of uncertainty of the results, including in the primary data, estimations, baseline scenarios and reported results; a description of how uncertainty applies to calculations of margins of error in data; and a description of how uncertainty does or does not affect the conclusion.

### 5.3 Establish the scope of the technical review

Users should clearly establish the scope of the technical review. The scope of a technical review includes the elements described below that are applicable to the impact assessment. When establishing the scope of technical review, the following information should be included:

- a description of the policy
- the policy impacts that were assessed
- whether the assessment is ex-ante or ex-post
- the materiality and level of assurance (if relevant)
- stakeholder participation in the impact assessment.

#### 5.3.1 Description of the policy

It is important to clearly describe the policy when establishing the scope of the technical review. Many aspects of the policy could affect the type of technical review selected or the qualifications necessary for the review team. The description should include the policy type, specific interventions carried out, the policy implementation period and the level of the policy.

#### 5.3.2 Policy or action impacts

GHG, sustainable development, transformational, and/or non-state or subnational action impact assessment report(s) can be reviewed. Although users can have multiple impacts reviewed at once, they may want to have only selected aspects of their impact assessment reviewed, such as GHG impacts

only or sustainable development impacts only. When establishing the scope of the review, state all impacts or the subset of GHG, sustainable development and/or transformational impacts to be reviewed. For each impact included in the scope of the review, establish, if relevant:

- **the assessment boundary** – the impact categories covered (GHG sources and carbon pools, and/or transformational change characteristics)
- **the assessment period** – the time period over which each type of impact resulting from the policy is assessed; this can vary between different types of impacts.

### 5.3.3 Ex-ante and ex-post assessments

Impact assessments can be done ex-ante or ex-post. Users should establish whether the assessment report being reviewed covers ex-ante and/or ex-post impact assessment.

### 5.3.4 Materiality and level of assurance (if relevant)

Where the user is pursuing technical review of GHG impacts, the scope may also include a materiality threshold and a level of assurance that the technical reviewer is to apply to the review. ICAT does not set quantified materiality thresholds. However, users could consider the following if establishing a materiality threshold:

- Identify, in advance of the review and potentially in consultation with the reviewer, the impact categories of the assessment for which a materiality threshold will be applied, and set a materiality threshold.
- Adopt the materiality threshold that is requested by, or agreed to with, a donor or private financier for whom the impact assessment was prepared.
- Select a default value for materiality, based on comparable practice and programmes, scale, and the quantity of GHG emissions reductions reported in the impact assessment. A default materiality threshold of 5–10% is suggested.

Within GHG programmes and reporting initiatives, 5% is the most commonly used materiality threshold. For example, the Climate Action Reserve sets a range

for GHG project materiality thresholds based on size – that is, 5% of stated reductions or removals for smaller projects, 3% for medium-sized projects and 1% for larger projects. The VCS Program sets a materiality threshold of 5% for projects up to 1 million tonnes; for projects over this amount, the threshold is 1%. In the IPCC, the key category analysis uses a similar approach, with a 5% level selected based on a sensitivity analysis of past reports and uncertainty.<sup>24</sup> In the accounting profession, materiality is estimated, typically, according to a “5% rule”, which holds that reasonable investors would not be influenced in their investment decisions by a fluctuation in net income of 5% or less. Although just a rule of thumb, this remains an underlying working guide to those setting materiality estimates.<sup>25</sup>

The concept of assurance, and the options of limited and reasonable assurance, as well as agreed-upon procedures, are discussed in [Chapter 2](#). The user’s choice between these assurance options should be guided by the objectives of the impact assessment and technical review. Where the intended audience of the assessment report and technical review report is a donor, users should take donor requirements into consideration when establishing the level of assurance.

Users should select a level of assurance that is appropriate for the impacts included in the assessment and technical review. Different levels of assurance can be applied to different impacts. For example, where a user is reviewing an assessment report that covers GHG and sustainable development impacts, a reasonable level of assurance can be applied in the review of the GHG impact assessment process and results, while agreed-upon procedures can be applied in the review of the sustainable development impact assessment process and results.

### 5.3.5 Stakeholder participation

The effectiveness of the stakeholder participation plan and process can also be reviewed. Where users report on how the stakeholder participation process was designed and conducted following the key recommendations, stakeholder participation may be included in the scope of the review. Users may consider pursuing a stakeholder-led review process when reviewing the effectiveness of the stakeholder participation process.

<sup>24</sup> Rypdal, Flugsrud and Irving (1999).

<sup>25</sup> Vorhies (2005).

## 5.4 Select the type of technical review

The appropriate type of technical review depends on user objectives and capacity for review, among other considerations. The considerations in [Table 5.1](#) are considered important because of their potential to impact the type of technical review selected. Where users have additional considerations, questions can be added, as needed, to ensure that the appropriate type of review is chosen. The following steps can be used to select an appropriate type of technical review:

- **Step 1.** Answer each question in [Table 5.1](#) and note the type of technical review each question suggests is most appropriate. Each question should be answered with the objectives for review in mind.
- **Step 2.** Evaluate the overall distribution of responses. Many responses of “first” indicate that first-party review may be best suited for the objectives, and similarly with many responses of “second” or “third”. Identify the type of review suggested most often.
- **Step 3:** Identify the considerations that could significantly impact the type of technical review selected. Carefully review each response that is in conflict with the type of review identified in step 2. Prioritize these considerations compared with the others. Look at considerations that could render a certain type of technical review ineffective or out of reach. For example, where users state that a high level of independence is desired (suggesting third-party review) and that limited financial resources are available for the review (suggesting first- or second-party review), these priorities are conflicting. The user may need to select a first- or second-party review based on available resources. However, there are steps users can take to increase the independence and credibility of a first- or second-party review, such as taking additional measures to reduce potential conflicts of interest.

In selecting a type of technical review, users should consider both the objectives for review and the desired level of independence. First- and second-party technical review are usually selected when the priority is on learning and improvement through the technical review process. With this focus, reviewers collaborate and work closely with the user to encourage learning and improvement; therefore, a

high level of independence is not necessary. Where the UNFCCC ICA, IAR or technical expert review process will be followed, users should consider pursuing first- or second-party technical review to focus on learning, improvement and preparation before the UNFCCC process.

Where external reporting and credibility are user priorities, the technical review should help the user by identifying areas of the impact assessment that could be strengthened; however, recommendations for improvement are not typically made, to maintain a certain level of independence. This level of independence corresponds most closely with third-party review, but a third-party reviewer can conduct a review with either of these priorities.

TABLE 5.1

**Matrix to support selection of type of technical review**

Considerations for technical review	High	Medium	Low
	Very	Somewhat	Slightly
	Yes	-	No
1. Is the technical review of an ex-ante assessment?	First, second	-	Third
2. How difficult is it for entities other than the user to gain access to information, assumptions and data regarding the impact assessment?	First	Second	Third
3. How important is it for the technical reviewer to be, or to be perceived as, minimally vulnerable to conflicts of interest?	Third	Second	First
4. How experienced with undergoing technical review is the user?	First	Second	Third
5. How much funding is available for the technical review process?	Third	Second	First
6. What level of independence is necessary for the intended audience of the technical review?	Third	Second	First
7. What level of transparency and stakeholder confidence in the technical review results is necessary?	Third	-	First, second
8. Does the donor and/or private financier of the policy require technical review?	Second, third	-	First
9. Is it necessary for the reviewer to have relevant accreditation?	Third	-	First, second

*Abbreviation:* -, not applicable



## 6 Preparing for technical review

*Technical reviews are based on information and evidence prepared by the user. Before engaging in review activities, all necessary information and evidence is prepared and made available to a prospective technical reviewer. This will enable the prospective technical reviewer to prepare a proposal for the review and for the user to select a technical reviewer.*

### Checklist of key recommendations

- Request sufficient information from the user to make an informed determination as to the knowledge, skills and experience needed by the review team to conduct the technical review

### 6.1 Identify necessary technical reviewer qualifications and select technical reviewer

[Chapter 4](#) provides information about qualifications of technical reviewers. Users should identify the needed qualifications given the objectives, scope and type of the technical review. For example, a technical review of GHG impacts with the objective of demonstrating results to a donor is likely to require different qualifications from a review of sustainable

development impacts for a domestic audience. [Box 6.1](#) provides an example of how the technical reviewer was selected to conduct the technical review of an impact assessment of a nationally appropriate mitigation action (NAMA).

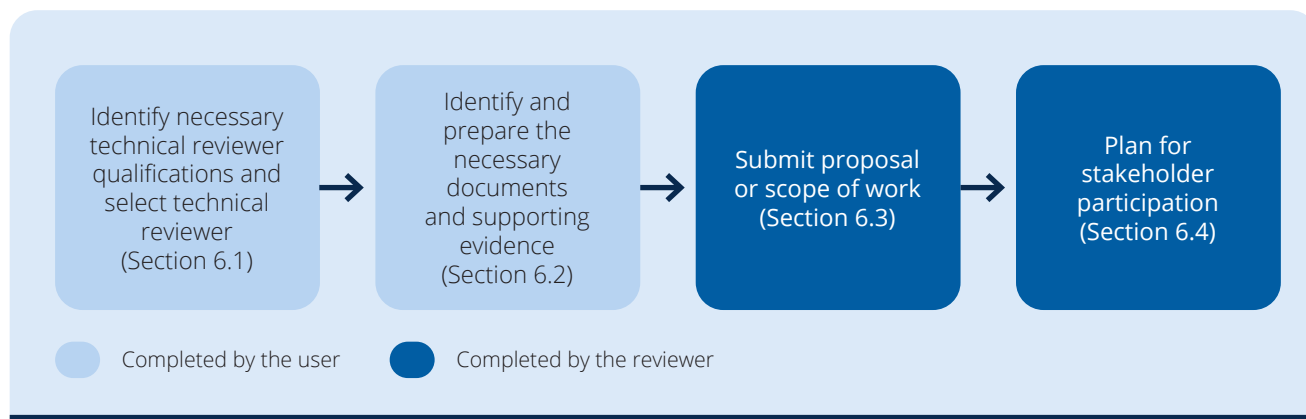
### 6.2 Identify and prepare the necessary documents and supporting evidence

To prepare for a technical review, a complete assessment report is needed. Each ICAT assessment guide has a chapter on reporting that specifies the information that should be included in an assessment report. The assessment report and supporting evidence should be prepared and provided to potential technical reviewers as part of the selection and planning process. The quality of the assessment report and supporting evidence provided to the technical reviewer can either facilitate (if the quality is high) or hinder (if the quality is low) their understanding of the policy to be evaluated.

It is helpful for the user to prepare a “terms of reference” document for the potential technical reviewer so that they have these in writing. The terms of reference set out a plan or a proposal

FIGURE 6.1

### Overview of steps in the chapter



**BOX 6.1****Example of selecting a technical reviewer**

The Grupo Ecológico Sierra Gorda, a national NGO in Mexico, is coordinating the implementation of the NAMA “Subnational mitigation actions for the regeneration of landscapes”. The NAMA includes state-led policies and actions for the regeneration of forests, and the implementation of planned grazing in 12 states. An ex-post assessment of impacts was conducted for the mitigation actions already implemented, and an ex-ante impact assessment was conducted for the scale-up and replication of the mitigation actions. Impact assessment reports were prepared following the key recommendations of the ICAT *Forest Methodology*, *Agriculture Methodology*, *Non-State and Subnational Action Assessment Guide* and *Transformational Change Methodology*.

Some of the mitigation actions included in the NAMA were implemented as part of a Grupo Ecológico project with financing from the Multilateral Investment Fund of the InterAmerican Development Bank. Therefore, Grupo Ecológico decided to pursue technical review of the impact assessment reports in conjunction with the final evaluation of the project. It was necessary to select a technical reviewer with the combined experience and qualifications necessary to evaluate the results of the completed project, as well as the assessments of GHG impacts and transformational change potential.

The request for proposals for a technical reviewer was sent to Mexican members of the UNFCCC Roster of Experts, GHG validation and verification bodies accredited by the Entidad Mexicana de Acreditación, verification bodies accredited under the forest offsets program that is most frequently used in Mexico, and other organizations with GHG quantification and sector expertise.

Proposals for the combined third-party project final evaluation and technical review of ICAT impact assessment reports were received from three accredited verification bodies, a team from the UNFCCC Roster of Experts, and an organization with a combination of GHG quantification and sector expertise. All proposals received involved highly qualified evaluation teams. The technical reviewer was selected based on their combination of GHG quantification experience, broad sector transformation expertise and experience with the pilot project donor.

for how the review will take place. The terms of reference should cover topics such as:

- qualifications or competencies required of the reviewer(s) or their organization(s)
- requests for curriculum vitae or resumes
- desired composition of the review team and scope of work of the team leader
- definition of deliverables to be produced (reports) and timing of their submission, as well as phases of revision and comments
- time frame for delivery of final reports
- requirements for in-person or remote meetings, such as opening and closing meetings
- expectations for stakeholder consultation, if relevant
- specific scope requirements

- costs, professional fees or budget terms
- travel and expenses allowed
- determination of confidential material and how it will be handled
- any public claims that are to be made based on the review report.

The information the technical reviewer needs to review will be more extensive than the information in the assessment report. Users should present all the underlying data and calculations to enable the reviewer to evaluate the accuracy of the results.

These can include:

- underlying data
- calculations, such as spreadsheets
- assumptions for calculations
- sources and references used
- a list of identified stakeholder groups

- other supporting documents and evidence that were used to arrive at the assessment results.

### 6.3 Submit proposal or scope of work

It is a *key recommendation* for the reviewer to request sufficient information from the user to make an informed determination as to the knowledge, skills and experience needed by the review team to conduct the technical review. When the technical reviewer has received all the documents and supporting evidence, they submit a proposal (in the case where the user will sign a formal contract with the reviewer, such as for second- or third-party review) or a scope of work (in the case of the user appointing a team from within a government agency, such as for first-party review). The proposal or scope of work should address each topic in the terms of reference, and provide an evaluation of any potential conflicts of interest.

#### 6.3.1 Conflict of interest

Users and reviewers should be aware that, with any technical review, there is the potential for bias and subjectivity if the technical reviewer has a vested interest in the outcome. Simply put, a technical reviewer's interests in returning either a positive or negative outcome in the technical review statement can come into conflict with the greater goal of an impartial and objective evaluation. This is referred to as conflict of interest.<sup>26</sup>

Potential circumstances that may cause a real or perceived conflict of interest are:

- direct employment with the organization, company or government agency in the recent past (e.g. within two years)
- close relatives working with the organization, company or government agency (e.g. spouse, in-laws, parents, grandparents, children, siblings)
- economic relationship with the organization, company or government agency (e.g. as shareholder)

- personal motivation for gain from the outcome of the review.

Reviewers are expected to disclose and mitigate any real or potential conflicts of interest at the stage of technical reviewer selection or technical review planning. Review team members should disclose any present or prior relationship with the user, relevant stakeholders or other entities involved in the policy being assessed that presents, or could appear to present, a conflict of interest with the review.

The reduced independence between the user and technical reviewer in first- or second-party review increases the likelihood of conflicts of interest. For all types of review, users should report how potential and actual conflicts of interest were avoided or minimized during the review process.

### 6.4 Plan for stakeholder participation (if relevant)

Users and reviewers can involve stakeholders in technical review of an assessment report (see the *ICAT Stakeholder Participation Guide*), including a review of the effectiveness of the stakeholder participation process, by:

- seeking stakeholder input and participation in the review process to supplement the evidence available to the reviewer
- engaging stakeholders to lead the review process, particularly when reviewing the effectiveness of the stakeholder participation process in the impact assessment.

#### 6.4.1 Stakeholder participation in technical review

Before beginning the technical review process, technical reviewers should consider how stakeholder participation could support their evaluation of the assessment report, and include relevant activities and associated resources in their technical review plan. Stakeholder participation can strengthen the technical review of an assessment report by providing additional input and confirmation of the evidence provided by the user. It can also help to demonstrate transparency and build confidence among stakeholder groups in the assessment and the review process. Stakeholder participation can also help achieve the objectives of the review

<sup>26</sup> See ANSI (2016) for more information.

by building support for policies among diverse stakeholders.

As part of the impact assessment, users may have established a multi-stakeholder body consisting of stakeholders with relevant skills and experience. To facilitate effective stakeholder participation in the technical review process, technical reviewers should ask for the contact information for these stakeholder groups (if it is not provided initially). Stakeholder groups can provide additional information or evidence to the technical reviewer during the desk review or field visit process.

When designing and preparing for an effective multi-stakeholder technical review process, consider the following points:

- The effectiveness of the technical review will be enhanced by consulting a broad range of stakeholders and providing effective opportunities for them to give feedback on the assessment report. The more feedback is received and the more this feedback is addressed in the report, the more the technical review will enhance the credibility of the report. The technical review process should be designed to be as inclusive as possible.
- The assessment report being reviewed should be provided to stakeholders well in advance of opportunities to provide feedback, to enable them to discuss and prepare their feedback, especially where consultations will be conducted through representatives of stakeholder groups. Reports should be provided in a language and format that are understood by stakeholders. Refer to the *ICAT Stakeholder Participation Guide*, Chapter 8, for guidance on designing and conducting consultations, and sharing reports with stakeholders.
- Stakeholders are likely to be more open in providing honest, and potentially negative, feedback if the consultations are facilitated by people independent of the organizers of the stakeholder participation process. Consider the relative advantages of an evaluation process led by the reviewer and a multi-stakeholder assessment that may include the organizers of the participation processes (such as government). These approaches could also be combined, taking into account the country context and the level of trust between stakeholders.

The *ICAT Stakeholder Participation Guide* provides further information, such as how to identify different stakeholder groups, how to provide them with information, how to engage them in multi-stakeholder bodies through consultations and through feedback and grievance redress mechanisms, and when to engage them in the technical review process.



# 7 Planning the technical review

*Technical review planning is a joint effort between the user and the technical reviewer. The user's objectives, as well as the established criteria and scope of the review, inform the reviewer's activities and schedule.*

## Checklist of key recommendations

- Coordinate with the user to establish a technical review plan

## 7.1 Submit documentation and supporting evidence to the reviewer

Users should provide the reviewer with all necessary documentation and supporting evidence for the review (as described in [Section 6.2](#)). If the assessment report and supporting evidence have not changed since the user submitted them to the reviewer during the proposal and contract process (see [Chapter 6](#)), the technical reviewer will have the necessary documentation. If the documentation has been updated – for example, if substantial time (several months to a year or more) has elapsed since planning of the review – current and complete documentation should be sent to the technical reviewer. The technical reviewer may request additional documents or supporting evidence. This is not unusual and can facilitate review of the assessment report.

## 7.2 Establish a technical review plan

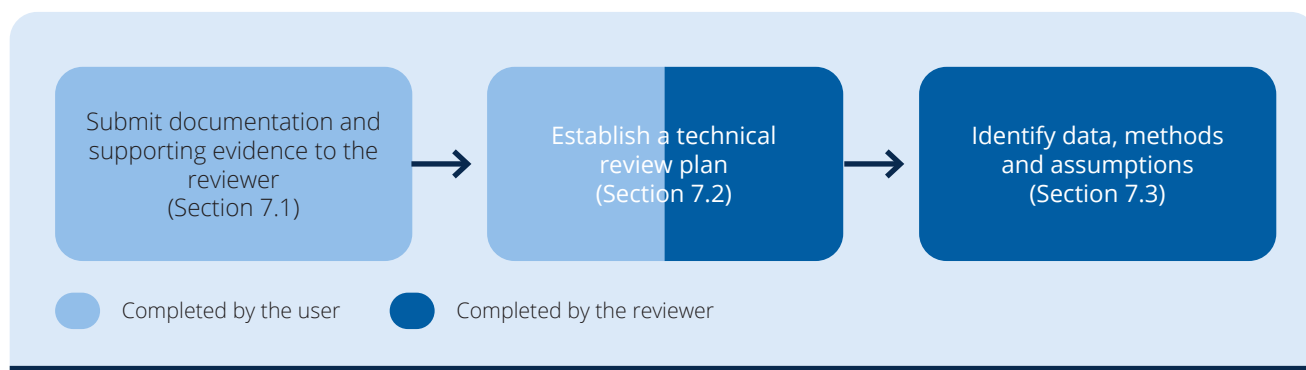
It is a *key recommendation* for the reviewer to coordinate with the user to establish a technical review plan. Technical review plans typically include timelines for key activities and milestones, including start and completion of the technical review. The key activities and milestones should be based on the scope of the technical review. The user and technical reviewer should make sure they agree on the scope of the review and include a description of the scope in the plan. The technical reviewer should consider the risks and magnitude of potential errors, omissions and misrepresentations in the assessment report in preparing the plan.

Technical review plans should include the type of information that will be reviewed. Example information to include in the technical review plan is given in [Table 7.1](#). Accredited verification firms may also have specific guidelines for additional information to present in a plan.

Users should inform relevant stakeholders of when the technical review will be conducted. This enables interested parties to prepare and plan for participation in the review if they would like to do so. Refer to the *ICAT Stakeholder Participation Guide*, Chapter 7, for guidance on providing information to stakeholders.

FIGURE 7.1

## Overview of steps in the chapter



**TABLE 7.1****Example information to include in technical review plans**

Information	Description
Responsible entities	The name of the entity that implemented the policy, plus the name of the entity that contracts with the technical reviewer (if this is a different entity).
Criteria and scope of technical review	Technical review criteria and scope, including the name of the policy and assessment report to be reviewed (see <a href="#">Chapter 5</a> for information about criteria and scope). Where the user is targeting a certain level of assurance, include the selected level of the assurance and the materiality threshold.
Qualifications of technical review team	Summary of review team's qualifications for the assignment (see <a href="#">Chapter 4</a> ).
Schedule for field visit (if relevant)	For reviews that involve a field visit to facilities, offices, communities or other sites (e.g. to gain first-hand understanding of policy impacts, or meet with individuals or community groups), a schedule that describes the locations to be visited and itinerary.
Schedule for technical review report	Schedule with expected timelines for the completion of draft and final reports, including the number of iterations of the report (whereby the user and reviewer exchange comments and responses). Specifications for a report template can also be included.
Supporting evidence	A list of additional documentation or evidence provided by the user (see <a href="#">Section 6.2</a> ).
Stakeholder contact information	Contact information for any stakeholders (other than the responsible entity listed above) that the reviewer would like to interview. These could include other government agencies, partnering institutions, universities, civil society organizations or local community groups.

### 7.3 Identify data, methods and assumptions

The ICAT assessment guides provide approaches and key recommendations that help users to define the methods, models, tools and assumptions that guide transparent and effective assessment and reporting of GHG, sustainable development and transformational impacts of policies. Such documents are relevant to the technical reviewer when planning a technical review. Before conducting a review, the reviewer will obtain information on methods, models, tools and assumptions associated with each impact type included in the assessment.

## 8 Conducting the technical review

*To determine whether an assessment report is consistent with ICAT key recommendations, technical reviewers conduct several activities. Reviewers conduct all activities according to the technical review plan before forming a technical review statement.*

### Checklist of key recommendations

- Conduct a desk review to evaluate whether the assessment report is consistent with the ICAT key recommendations upon which the assessment was based and/or any other criteria for technical review
- Undertake a field visit to support the review

### 8.1 Conduct technical review

All technical reviews involve a desk review. Field visits are also recommended. Both desk reviews and field visits can be further supported by interviews and surveys, as described in the sections below.

#### 8.1.1 Desk reviews

It is a *key recommendation* for the reviewer to conduct a desk review to evaluate whether the

assessment report is consistent with the ICAT key recommendations upon which the assessment was based and/or any other criteria for technical review. Desk reviews are the main way in which assessment reports are evaluated. A desk review is an examination of documents and supporting evidence that is done away from the user's place of work (i.e. the review is done remotely, most likely at the office of the technical reviewer in the case of second- or third-party review). It also includes phone calls and emails between the reviewer and the user.

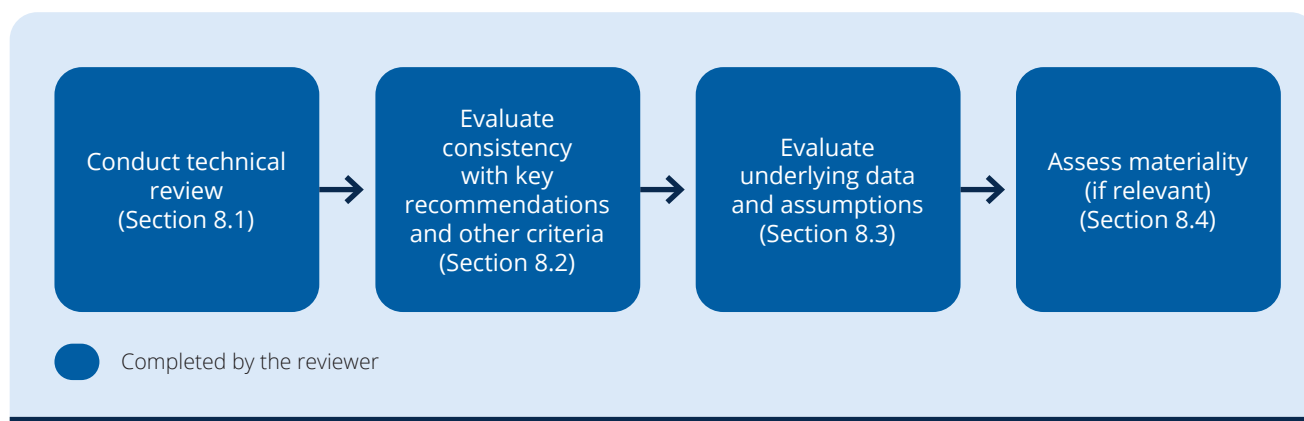
Documents to review include the assessment report; supporting evidence; and the methods, models, tools and assumptions applied. Descriptions of the relevant policies – including detailed explanation of objectives, implementation plans, progress reports, limitations observed and key institutional arrangements – can strengthen technical reviewer understanding and improve their review.

#### 8.1.2 Field visits

Desk reviews can be strengthened through field visits. A field visit entails an evaluation of the impact assessment (possibly including examination of documents and supporting evidence) at the user's place of work, and/or the place of work of the entity

FIGURE 8.1

### Overview of steps in the chapter



that prepared the assessment report (if it was not prepared by the user).

It is a *key recommendation* for the reviewer to undertake a field visit to support the review. This allows face-to-face discussions between the user and the technical reviewer, and enhances the reviewer's understanding of the assessment report. These conversations can occur while the desk review is being conducted.

The visit may include visits to multiple offices or field sites relevant to the collection of data and other information for the assessment report. Depending on the type of policy, it may be beneficial for the reviewer to visit a sample of facilities, natural areas (e.g. agricultural lands and forests) or communities affected by the policy.

Technical reviewers should independently collect data to confirm the reported information and results. Data can be collected at a selected or random sample of facilities within the relevant industry, supply chain or governmental agency. For example, in the United States, the Wage and Hours Division selectively inspects production facilities that use low-wage labour to ensure that they are following a range of state and federal laws (e.g. *Fair Labor Standards Act*).<sup>27</sup> The United Nations Law of the Sea allows for state-sponsored officers to inspect any foreign boats of states that are signatories to the Law of the Sea for violations of the Fish Stocks Agreement.<sup>28</sup> The Comprehensive Nuclear-Test-Ban Treaty Organization conducts facility inspections and on-site environmental sampling to verify that no current or past chemical activity has occurred in non-compliance with the treaty.<sup>29</sup>

Data can be collected outside of specific facilities when (1) data are needed to measure large natural areas; (2) data are needed to measure the greater impact, independent of specific facilities; or (3) access to facilities is limited or prohibited. The International Atomic Energy Agency uses satellite imaging to monitor facility activity and detect radioactivity.<sup>30</sup> Equipment and software that make verification cheaper and thus more accessible are being developed. For example, drone technology is being used by countries receiving UN-REDD+ funding

to verify that their forests are being managed in accordance with UN-REDD requirements.<sup>31</sup>

### 8.1.3 Interviews and surveys

Interviews and surveys can be conducted to understand more completely the policy that was assessed, confirm previously asserted information and improve the technical review process as a whole. Interviews and surveys can be conducted face to face or through digital means. They can be targeted to the user directly or can involve external experts, community members, and other representative and identified stakeholders.

When conducting interviews and surveys with stakeholders, consider the following:

- Feedback on the assessment report can be solicited from stakeholders through various consultation methods, including online surveys, and meetings or workshops with different stakeholder groups.
- All feedback received from stakeholders should be collated and taken into account. Share with stakeholders (those involved in the technical review and others), and publish, the methods followed to process feedback received, as well as at least a summary of the inputs received and how they were taken into account.
- Seek the support of stakeholders – for example through a multi-stakeholder body – to resolve differences of opinion among stakeholders and to validate reports. These can include both the final report of stakeholder participation in policy design, implementation and evaluation, and the report of the technical review, including methods, processes followed, participation, feedback received and how feedback was taken into account.

Chapter 8 of the *ICAT Stakeholder Participation Guide* contains additional guidance for designing and conducting consultations, including interviews and surveys.

[Box 8.1](#) gives an example of use of interviews and surveys in technical review.

<sup>27</sup> USWHD (2015).

<sup>28</sup> United Nations General Assembly (1995, 2010).

<sup>29</sup> CTBTO (2010).

<sup>30</sup> IAEA (2007).

<sup>31</sup> Zwick (2011).



**BOX 8.1****Examples of using interviews and surveys in technical review**

Example 1: The World Health Organization, in its fight against measles and rubella, conducts vaccination surveys in treated communities. These surveys are used to triangulate reported data on vaccination rates and to verify that vaccination programmes are reaching the estimated number of people.<sup>32</sup>

Example 2: ICF International, in its verification of Entergy's Corporate Greenhouse Gas Inventory, interviewed key personnel to understand the emissions monitoring system, and gain insight into margins of error within the system.<sup>33</sup>

**8.2 Evaluate consistency with key recommendations and other criteria****8.2.1 Key recommendations and other criteria**

Technical reviews are conducted according to the criteria for review (see [Section 5.2](#)). In general, the review is an evaluation of the assessment report for consistency with ICAT key recommendations and any other criteria. The assessment report contains an assessment statement, which sets out the key recommendations that the user has followed and any other criteria with which consistency is to be assessed in the technical review. For example, if using the ICAT *Renewable Energy Methodology* and *Sustainable Development Methodology*, the assessment statement will include the relevant key recommendations from these assessment guides. Some key recommendations in the assessment guides may not be relevant to the particular policy or impact assessment, and the assessment statement explains and justifies why such recommendations have not been followed.

Reviewers should evaluate whether the user has interpreted the key recommendations correctly, stepping through each key recommendation one by one. The ICAT assessment guides provide supporting methods for each key recommendation, which provide the basis for the reviewer to evaluate whether the recommendation has been interpreted correctly and the assessment report is consistent with it. Where other criteria are specified as part of the scope of the review, reviewers should evaluate

all supporting evidence and determine whether the assessment report is consistent with the criteria.

Reviewers should also draw upon their own experience, expertise and professional judgment, and relevant norms and good practice. In undertaking this evaluation, reviewers should keep in mind the technical review principles in [Section 2.3](#).

Reviewers should evaluate whether the assessment report contains sufficient information to explain and justify how each key recommendation and other criteria were followed. Written explanation should be supported by reference to evidence, such as the outputs of methods and tools, and analysis and other studies.

**8.2.2 Application of principles**

The ICAT impact assessment guides provide a set of principles for impact assessments, and the documents state that it is a key recommendation to base the impact assessment on these principles. The principles are *relevance*, *completeness*, *consistency*, *transparency* and *accuracy*. In addition, the principle of *comparability* can sometimes be relevant. The ICAT *Transformational Change Methodology* provides an additional principle on *reflection on action*. Reviewers should ensure that any key recommendations relating to impact assessments (followed by the user) have been interpreted in a way that is consistent with these assessment principles. Each assessment guide discusses the principles in full, and reviewers should use these discussions as their guide for interpreting the principles.

The ICAT *Stakeholder Participation Guide* provides a set of principles for stakeholder participation, and the document states that it is a key recommendation to base stakeholder participation on these principles. The principles are *inclusiveness*,

<sup>32</sup> WHO (2014).

<sup>33</sup> ICF International (2016).

*transparency, responsiveness, accountability and respect for rights.* Reviewers should ensure that any key recommendations relating to stakeholder participation (followed by the user) have been interpreted in a way that is consistent with these principles. The principles are discussed in full in the *Stakeholder Participation Guide*, and reviewers should use this as their guide for interpreting them.

Review of adherence to the intent of assessment principles takes place at an overarching level. It is not a review of each individual key recommendation against each principle. Nor would all key recommendations that a user followed lend themselves to clear-cut evaluation.

### 8.3 Evaluate underlying data and assumptions

It is important for the technical reviewer to cross-check the underlying data and assumptions used to estimate impacts with other independent sources. The purpose of cross-checking is to confirm that data and assumptions are appropriate for the country and context to which they are being applied. Reviewers can cross-check through consultations with experts (e.g. academic and NGO researchers), published literature or specialized websites. Field visits, interviews and surveys, and field-based observations can be used. For example, if a user conducts a financial feasibility analysis, the reviewer can check whether the discount rate used in the analysis is appropriate for the country context. Population growth and data on gross domestic product are other examples of data that can be cross-checked with domestic and global databases to determine the appropriateness of the assumptions made in the impact assessment.

### 8.4 Assess materiality (if relevant)

The technical review should be conducted according to the agreed-upon materiality threshold. The reviewer should conduct the review to either a reasonable or limited level of assurance, or according to the agreed-upon procedures (see [Chapter 2](#)). Where a materiality threshold was established, the reviewer should ensure that all results are free from material misstatement. Materiality has both qualitative and quantitative aspects. Certain qualitative discrepancies, such as a discrepancy with respect to ownership, must always be noted as a material issue. In other cases,

qualitative discrepancies will be less definite and may ultimately manifest themselves as quantitative discrepancies. When considering less definite qualitative discrepancies, reviewers should use their professional judgment to determine the issues that immediately need to be identified as material, and that require further investigation through sampling and testing.

When assessing quantitative materiality of data errors, omissions or misrepresentations, reviewers should assess materiality with respect to the aggregate estimate of results, such as the GHG emissions reductions and removals, set out in the assessment report. Uncertainties inherent in methodologies are not to be considered.

All material errors, omissions and misrepresentations should be addressed before a technical reviewer issues a conclusion with the desired level of assurance on an assessment report. Where non-material errors are found in the assessment report, reviewers should ensure that such errors are addressed by the user, where practicable.

## 9 Reporting

*Reporting on the technical review process and results provides users and stakeholders with assurance that the technical review plan has been followed, and explains and justifies any changes made to the assessment report as a result of the technical review. Technical review reports also document the areas of an assessment report that could be strengthened, thereby enhancing future assessments.*

*Reporting on technical review, combined with reporting on the impacts of the policy, can build support for the policy among the public, specific stakeholder groups and donors. This chapter discusses the information that is recommended to be included in a technical review report and an assessment report regarding the technical review.*

### Checklist of key recommendations

- Write a technical review report documenting the process and results of the technical review
- Identify areas of the assessment report that could be improved
- Provide a technical review statement corresponding to the scope of the technical review

### 9.1 Draft initial technical review report

It is a *key recommendation* for the reviewer to write a technical review report documenting the process and results of the technical review. The reviewer's findings, recommendations for improvement and conclusions are written into an initial technical review report. Where the report is written by a review team, the team leader should conduct a quality check of the report to ensure that the findings, recommendations and conclusions are consistent throughout. This initial report serves as the basis for exchange between the reviewer and the user, and will be revised during this process. Therefore, version control should be in place. [Table 9.1](#) lists the type of information that should be provided in the report.

### 9.2 Submit initial report to user

The reviewer submits the initial technical review report to the user. The user examines the report and provides clarifications to the reviewer relating to any instances of incomplete information in the assessment report or elsewhere.

FIGURE 9.1

### Overview of steps in the chapter

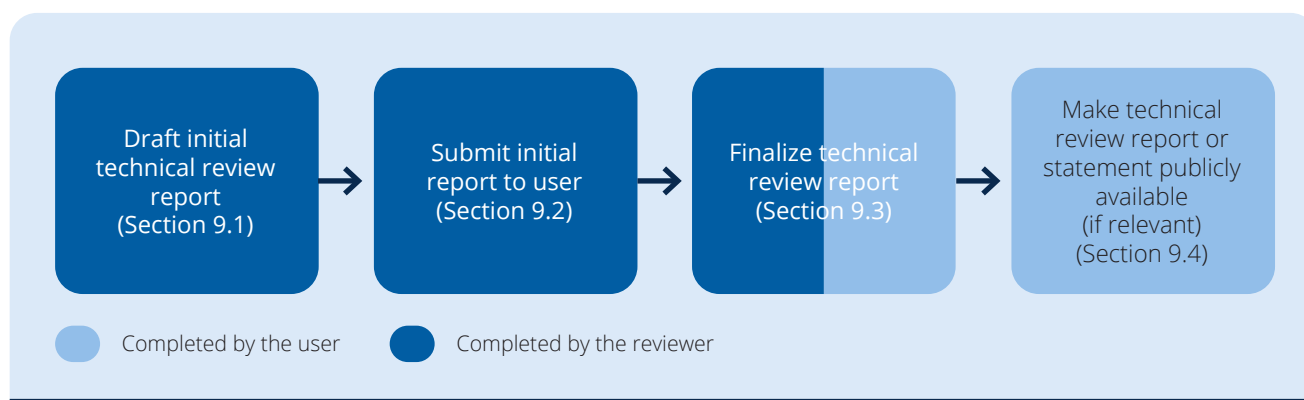


TABLE 9.1

**Example information to include in technical review reports**

Item	Description
Policy	Provide a summary description of the policy being reviewed, including the name of the policy, the person(s)/organization(s) that did the assessment, the date of the assessment, whether the assessment is an update of a previous assessment and, if so, links to any previous assessments.
Assessment statement	Include a summary of the user's statement regarding the specific ICAT assessment guide used as the basis for their impact assessment.
Objectives	Describe the user's objectives for technical review.
Scope and criteria	Describe the scope and criteria of the review. List the key recommendations followed, and any that were not followed and why. List any materials, additional to the assessment report, provided for the review.
Type of review	State the type of technical review conducted (first, second or third party).
Level of assurance	Indicate the level of assurance of the review, if relevant.
Materiality	State the materiality threshold, if relevant.
Review team qualifications	Describe the relevant qualifications and accreditations of the technical review team.
Conflicts of interest	Describe how any conflicts of interest were handled.
Technical review process	Describe the method used for the technical review. Including a summary of the documents reviewed, interviews and field visits conducted, and the process for resolution of any findings of the review.
Review findings	Describe the findings raised in the technical review. Include records of queries, requests and responses between the user and the review team, as well as any justifications for discrepancies, inconsistencies or information gaps.
Recommendations for improvement	Provide a summary of recommendations for improvement for future impact assessments.
Technical review statement	Clearly state whether the assessment report is consistent with the review criteria. Provide an initial technical review statement (see <a href="#">Section 9.3</a> for more information on technical review statements).

The nature of the dialogue between the reviewer and the user at this stage of the process depends on the user's objectives for the technical review and the type of review being undertaken. In particular, for a second-party review whose objective is to support planning and evaluation of policies, this stage can provide an opportunity for feedback and discussion of results. The initial review report can be used to facilitate learning for the user, such that they can improve their assessment of policies over time. The

facilitative sharing of views within the ICA process is an example of a review process that emphasizes feedback and learning, as described in [Box 9.1](#).

For a third-party review whose objective is oriented to an external audience (e.g. to demonstrate results to donors or private financiers), the dialogue between the reviewer and the user may be less collaborative so that the reviewer maintains a greater degree of independence in the process.

**BOX 9.1****Facilitative sharing of views**

The UNFCCC ICA process includes two steps: (1) technical analysis of a BUR by a team of technical experts, resulting in a summary report; and (2) facilitative sharing of views (FSV) among parties, with the summary report and the submitted BUR as inputs. The FSV is in the form of a workshop, during which each party gives a brief presentation on their BUR. A question-and-answer session between parties takes place after each presentation, with the goal of sharing lessons learned. Questions are typically focused on topics such as the impact of mitigation actions and assessment of the implementation of actions; institutional arrangements for measurement, reporting and verification; and experiences with, and lessons learned from, using higher tiers in the preparation of GHG inventories.

The reviewer and user should ensure that the process for dialogue between them is clearly understood by both parties. In some cases, a less formal process is appropriate, such as when the emphasis of the review is on feedback and learning. In others cases, a more formal process (e.g. involving written comments and responses) is appropriate, such as when a greater degree of independence between the user and reviewer needs to be maintained. The user should provide additional information or supporting evidence to address any findings raised by the reviewer.

**9.3 Finalize technical review report**

The reviewer updates the technical review report to reflect the discussions and any supplemental information provided by the user. These updates can include closing or revising findings, making additional recommendations, or providing a revised technical review statement. Such revisions would typically only take place after written or verbal communications between the user and the technical reviewer that lead to an agreement to revise the report. An updated report, prepared for finalization, may include updates as described below.

**9.3.1 Closing or revising findings**

The technical review report draft may be revised before finalization for several reasons. Where the user provides evidence to address an issue raised or new information to strengthen the review report, the reviewer should update the report with a revised conclusion.

**9.3.2 Recommendations for improvement**

It is a *key recommendation* for the reviewer to identify areas of the assessment report that could be improved. Recommendations for future impact assessments may have been identified in the initial report, or may stem from the subsequent discussions between the reviewer and the user. Particularly where the user's objectives in pursuing review are to assist with planning and evaluation of policies, and to use review as a learning opportunity, these recommendations for improvement are an important aspect of the final report.

Recommendations for improvement may relate to improved data collection and archiving, preparation for review and reporting, institutional capacities for measurement and reporting for policies, or increased stakeholder participation.

[Box 9.2](#) sets out typical recommendations for improvement as part of the ICA process.

**9.3.3 Technical review statement**

It is a *key recommendation* for the reviewer to provide a technical review statement corresponding to the scope of the technical review. The technical review statement provides a short summary of the review process and ends with the reviewer's conclusion. [Table 9.2](#) provides examples of the type of information that should be included in a review statement.



**BOX 9.2****Capacity-building needs identified in the ICA process**

The first step in the ICA process is the technical analysis of a BUR. At the end of this first step, the team of technical experts provides a summary report on the results of the technical analysis. Summary reports include a list of capacity-building needs or recommendations for future BURs. Typical recommendations include the following:

- Use a higher tier methodological approach.
- Establish a quality control and quality assurance system to ensure a high quality of data for assessment of mitigation actions.
- Establish or strengthen data collection and management systems to support the assessment of mitigation actions.
- Apply methods consistently across sectors where multiple sectors were included.
- Include GHGs or sectors that did not previously have adequate data.
- Use country-specific activity data and emission factors.
- Strengthen the existing institutional arrangements related to the preparation of BURs on a continual basis.
- Increase training of experts and technology transfer.
- Enhance the validation/verification process for mitigation actions.

## 9.4 Make technical review report or statement publicly available (if relevant)

Users should report whether the GHG, sustainable development, transformational and/or non-state or subnational impact assessment report(s) were reviewed. They should indicate the type of technical review (first, second or third party), the relevant competencies of the technical reviewer(s) and the review conclusion. This can be done by updating the assessment report or by making the technical review report and/or review statement publicly available.

Making technical review reports and/or review statements publicly available can add credibility to the impact assessment. This is particularly the case where the objectives of the review are more oriented to an external audience. It can also be a means of sharing information about impact assessments, and their reviews, with other practitioners.

Where the user wishes to make the review statement publicly available, the statement should include the information in [Table 9.2](#). It can be included within the technical review report, or as a stand-alone signed attestation of performance or results. Where the user's objective is to assist with planning and evaluation of policies, making the technical review report or the assessment report publicly available might not be a priority.

The technical review report can be made public in its entirety, or the review statement can be made public on its own (without the whole technical review report). Alternatively, the review statement could be inserted into the assessment report, and therefore made publicly available via the assessment report. Either way, it is recommended that the assessment report is updated at the end of the technical review process to include the type of review undertaken (first, second or third party), the qualifications of the reviewers and the review conclusion (as described in the reporting chapters of the ICAT impact assessment guides).

TABLE 9.2

**Example information to include in technical review statements**

Item	Description
Scope of the review	Description of the scope of the review, including the time period of the assessment report reviewed
Level of assurance	The level of assurance of the review, if relevant
Review team qualifications	Summary of the relevant qualifications and accreditations of the technical review team
Technical review process	Summary of the method used for the technical review, including a brief summary of the documents reviewed, interviews and field visits conducted, and the process for resolution of any findings
Summary of findings	Summary of the number of findings and whether they were all addressed
Technical review conclusion	<p>The final opinion of the reviewer regarding whether the assessment report meets the review criteria. An example conclusion might read as follows:</p> <p>“I have evaluated the user’s assessment of greenhouse gas and sustainable development impacts of their policy. The user has followed the ICAT key recommendations, and their assessment is consistent with the key recommendations set out in the Renewable Energy and Sustainable Development Methodologies. The following ICAT key recommendations were not followed, and appropriate justification was provided [explain ...].”</p> <p>The above conclusion is also appropriate where a reasonable level of assurance is sought by the user.</p> <p>For limited assurance engagements, an example conclusion might read as follows:</p> <p>“I have evaluated the user’s assessment of greenhouse gas and sustainable development impacts of their policy. Nothing has come to my attention to suggest that the user has not followed the ICAT key recommendations and that their assessment is not consistent with the key recommendations set out in the Renewable Energy and Sustainable Development Methodologies. The following ICAT key recommendations were not followed, and appropriate justification was provided [explain ...].”</p> <p>Separate conclusions can also be written for the different types of impacts (GHG, sustainable development, transformational change) where the user has sought different levels of assurance for each.</p> <p>If the reviewer does not have sufficient objective evidence to reach an opinion about whether the assessment report meets the review criteria (having worked with the user to obtain the required evidence), they should explain this in their conclusion.</p>

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# Abbreviations and acronyms

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<b>BUR</b>	biennial update report
<b>CDM</b>	Clean Development Mechanism
<b>GHG</b>	greenhouse gas
<b>IAR</b>	international assessment and review
<b>ICA</b>	international consultation and analysis
<b>ICAT</b>	Initiative for Climate Action Transparency
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>ISO</b>	International Organization for Standardization
<b>NGO</b>	non-governmental organization
<b>REDD+</b>	reducing emissions from deforestation and forest degradation
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VCS</b>	Verified Carbon Standard

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# Glossary

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<b>Assessment period</b>	The time period over which impacts resulting from the policy are assessed
<b>Assessment report</b>	A report, completed by the user, that documents the assessment process, and the GHG, sustainable development and/or transformational impacts of a policy
<b>Assessment statement</b>	A statement made by the user that summarizes the assessment process and the results of the impact assessment
<b>Assurance</b>	A statement that gives confidence or certainty about the information that is reported in an impact assessment
<b>Baseline scenario</b>	A reference case that represents the events or conditions most likely to occur in the absence of a policy (or package of policies) being assessed
<b>Conflict of interest</b>	A situation that (1) has the potential to undermine or compromise the impartiality of a review team member, or (2) puts the review team member or their family member in a position to derive personal financial, professional or political benefit from an action or decision made as a review team member. The presence of a conflict of interest is independent of its actual occurrence.
<b>Evidence</b>	Data sources, estimation and assessment methods or tools, and documentation that are used to estimate the impacts of a policy, and that support the assessment report and the assessment statement
<b>Ex-ante assessment</b>	The process of assessing expected future impacts of a policy (i.e. a forward-looking assessment)
<b>Ex-post assessment</b>	The process of assessing historical impacts of a policy (i.e. a backward-looking assessment)
<b>First-party technical review</b>	A type of technical review carried out by the same government agency that is responsible for the implementation of the policy and/or the impact assessment
<b>Impact assessment</b>	Assessment or estimation of GHG, sustainable development or transformational impacts resulting from a policy, either ex-ante or ex-post
<b>Materiality</b>	The concept applied to determine whether errors, omissions or misrepresentations in information could affect an assessment statement regarding GHG, sustainable development or transformational impacts
<b>Policy or action</b>	An intervention taken or mandated by a government, institution or other entity, which may include laws, regulations and standards; taxes, charges, subsidies and incentives; information instruments; voluntary agreements; implementation of technologies, processes or practices; and public or private sector financing and investment
<b>Policy implementation period</b>	The time period during which a policy is in effect

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<b>Quality assurance (QA)</b>	Activities including a planned system of review procedures to verify that data quality objectives were met and to support the effectiveness of the quality control system
<b>Quality control (QC)</b>	A system of routine technical activities, to measure and control the quality of data or subject matter
<b>Second-party technical review</b>	A type of technical review performed by a person or organization that has an interest in, or affiliation with, the user
<b>Stakeholders</b>	People, organizations, communities or individuals who are affected by, and/or who have influence or power over, a policy
<b>Subject matter</b>	The GHG, sustainable development or transformational results and supporting information included in the assessment report
<b>Technical review (review)</b>	A process that evaluates an assessment report in accordance with the criteria and scope of the review. The process results in a written technical review report and technical review statement.
<b>Technical reviewer (reviewer)</b>	The entity or individual conducting a technical review
<b>Technical review report</b>	A report, completed by the technical reviewer, that documents the process that was undertaken to evaluate the assessment report in accordance with the criteria and scope of the review
<b>Technical review statement of (review statement)</b>	A statement made by the technical reviewer that provides a summary of the review process and the reviewer's conclusion of the technical review
<b>Third-party technical review</b>	A type of technical review performed by a person or organization that is independent from the user in terms of commercial, financial and legal interests
<b>Verification</b>	An empirical process of data collection and analysis carried out by an independent party with technical qualifications to determine (1) whether, or to what extent, an entity is meeting its obligations under a treaty or against a standard, or (2) that an assertion or claim made by a party to show their compliance with a treaty or standard is true



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# References

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- AICPA (American Institute of Certified Public Accountants) (2016). *Agreed-Upon Procedures Engagements*. AT Section 201. Available at [www.aicpa.org/Research/Standards/AuditAttest/DownloadableDocuments/AT-00201.pdf](http://www.aicpa.org/Research/Standards/AuditAttest/DownloadableDocuments/AT-00201.pdf).
- ANSI (American National Standards Institute) (2016). *Conflict of Interest Policy*. Washington, D.C. Available at [www.ansi.org/Accreditation/product-certification/DocumentDetail?DRId=728](http://www.ansi.org/Accreditation/product-certification/DocumentDetail?DRId=728).
- Brack, Duncan (2003). Monitoring the Montreal Protocol. In *Verification Yearbook*. Available at [www.vertic.org/media/Archived\\_Publications/Yearbooks/2003/VY03\\_Brack.pdf](http://www.vertic.org/media/Archived_Publications/Yearbooks/2003/VY03_Brack.pdf).
- CTBTO (Comprehensive Nuclear-Test-Ban Treaty Organization) (2010). *Lecture 14: Overview of CTBT On-Site Inspections*. Vienna. Available at [https://ctbtcourse.files.wordpress.com/2010/10/lecture\\_13\\_ic\\_osi\\_matjaz\\_prah\\_14102010.pdf](https://ctbtcourse.files.wordpress.com/2010/10/lecture_13_ic_osi_matjaz_prah_14102010.pdf).
- Ellis, Jane, and others (2011). *Design Options for International Assessment and Review (IAR) and International Consultations and Analysis (ICA)*. Paris: Organisation for Economic Co-operation and Development. Available at [www.oecd.org/env/cc/49101052.pdf](http://www.oecd.org/env/cc/49101052.pdf).
- Global Reporting Initiative (2013). *G4 Sustainability Reporting Guidelines, Part 1, Reporting Principles and Standard Disclosures*. Available at [www.globalreporting.org/resourcelibrary/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf](http://www.globalreporting.org/resourcelibrary/GRIG4-Part1-Reporting-Principles-and-Standard-Disclosures.pdf).
- IAASB (International Auditing and Assurance Standards Board) (2013). *Handbook of International Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements*. New York. Available at [www.ifac.org/publications-resources/2013-handbook-international-quality-control-auditing-review-other-assurance-a](http://www.ifac.org/publications-resources/2013-handbook-international-quality-control-auditing-review-other-assurance-a).
- IAEA (International Atomic Energy Agency) (2007). *IAEA Safeguards: Staying Ahead of the Game*. Vienna. Available at [www.iaea.org/sites/default/files/safeguards0707.pdf](http://www.iaea.org/sites/default/files/safeguards0707.pdf).
- ICF International (2015). *Entergy Corporate Greenhouse Gas Inventory for Calendar Year 2014: Verification Report*. Toronto.
- \_\_\_\_\_ (2016). *Entergy Corporate Greenhouse Gas Inventory for Calendar Year 2015: Verification Report*. Toronto. Available at [http://americancarbonregistry.org/how-it-works/accounts/icf\\_verification-report\\_entergy-2015.pdf/view](http://americancarbonregistry.org/how-it-works/accounts/icf_verification-report_entergy-2015.pdf/view).
- Integrated Reporting Council (2013). *Materiality Background Paper for Integrated Reporting*. Amsterdam. Available at <https://integratedreporting.org/wp-content/uploads/2013/03/IR-Background-Paper-Materiality.pdf>.
- IPCC (Intergovernmental Panel on Climate Change) (1996). *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. Geneva. Available at [www.ipcc-nggip.iges.or.jp/public/gp/english](http://www.ipcc-nggip.iges.or.jp/public/gp/english).
- ISO (International Organization for Standardization) (2004). ISO/IEC 17000: Conformity assessment – vocabulary and general principles. Available at [www.iso.org/standard/29316.html](http://www.iso.org/standard/29316.html).
- \_\_\_\_\_ (2006). ISO 14064-3: Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions. Available at [www.iso.org/standard/38700.html](http://www.iso.org/standard/38700.html).
- \_\_\_\_\_ (2011a). ISO 14066: Greenhouse gases – competence requirements for greenhouse gas validation teams and verification teams. Available at [www.iso.org/standard/43277.html](http://www.iso.org/standard/43277.html).
- \_\_\_\_\_ (2011b). ISO 19011: Guidelines for auditing management systems. Available at [www.iso.org/standard/50675.html](http://www.iso.org/standard/50675.html).
- \_\_\_\_\_ (2013). ISO 14065: Greenhouse gases – requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition. Available at [www.iso.org/standard/60168.html](http://www.iso.org/standard/60168.html).

- \_\_\_\_\_ (2015a). ISO 9001: Quality management systems – requirements. Available at [www.iso.org/standard/62085.html](http://www.iso.org/standard/62085.html).
- \_\_\_\_\_ (2015b). ISO 14001: Environmental management systems. Available at [www.iso.org/iso-14001-environmental-management.html](http://www.iso.org/iso-14001-environmental-management.html).
- MEASURE Evaluation (2017). Step 3: Site verification interviews. Available at [www.measureevaluation.org/resources/training/online-courses-and-resources/non-certificate-courses-and-mini-tutorials/the-place-method](http://www.measureevaluation.org/resources/training/online-courses-and-resources/non-certificate-courses-and-mini-tutorials/the-place-method).
- Republic of Ghana (2015). *Ghana's First Biennial Update Report*. Available at <http://unfccc.int/resource/docs/natc/ghnbur1.pdf>.
- Rypdal, Kristin, Ketil Flugsrud and William Irving (1999). *Good Practice: Methodological Choice*. Available at [www.ipcc-nggip.iges.or.jp/public/gp/bgp/6\\_1\\_Methodological\\_Choice.pdf](http://www.ipcc-nggip.iges.or.jp/public/gp/bgp/6_1_Methodological_Choice.pdf).
- Tribunal de Contas da União (2014). *Auditoria Operacional nas Concessões Florestais*. Available at <https://portal.tcu.gov.br/biblioteca-digital/auditoria-operacional-nas-concessoes-florestais-federais.htm>.
- \_\_\_\_\_ (2017). Federal Court of Accounts (TCU – Brazil). Available at <http://portal.tcu.gov.br/english>.
- UNFCCC (United Nations Framework Convention on Climate Change) (2010). *The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention*, Decision [1/CP.16]. Bonn. Available at <https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>.
- \_\_\_\_\_ (2011). *Modalities and Guidelines for International Consultation and Analysis (ICA) of Biennial Update Reports under the Subsidiary Body for Implementation (SBI)*. Bonn. Available at <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=43>.
- \_\_\_\_\_ (2014). *Guidelines for the Technical Review of Information Reported Under the Convention Related to Greenhouse Gas Inventories, Biennial Reports and National Communications by Parties Included in Annex I to the Convention*. UNFCCC/CP/2014/10/Add.3/13/CP.20. Bonn. Available at <http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf#page=3>.
- United Nations General Assembly (1995). *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*. A/CONF.164/37. Available at [www.un.org/depts/los/convention\\_agreements/texts/fish\\_stocks\\_agreement/CONF164\\_37.htm](http://www.un.org/depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm).
- \_\_\_\_\_ (2010). *Report of the Resumed Conference on the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*. A/CONF.210/2010/. Available at [www.un.org/depts/los/convention\\_agreements/reviewconf/review\\_conference\\_report.pdf](http://www.un.org/depts/los/convention_agreements/reviewconf/review_conference_report.pdf).
- USWHD (United States Wage and Hour Division) (2015). *Fact Sheet #44: Visits to employers*. Washington, D.C. Available at [www.dol.gov/whd/regs/compliance/whdfs44.pdf](http://www.dol.gov/whd/regs/compliance/whdfs44.pdf).
- Verra (2016). *Validation and Verification Manual*, v3.2. Washington, D.C. Available at [http://verra.org/wp-content/uploads/2018/03/VCS\\_Validation\\_Verification\\_Manual\\_v3.2.pdf](http://verra.org/wp-content/uploads/2018/03/VCS_Validation_Verification_Manual_v3.2.pdf).
- Vorhies, James B. (2005). The new importance of materiality. *Journal of Accountancy*, 1 May 2005. Available at [www.journalofaccountancy.com/issues/2005/may/thenewimportanceofmateriality.html](http://www.journalofaccountancy.com/issues/2005/may/thenewimportanceofmateriality.html).
- WHO (World Health Organization) (2014). *Eliminating Measles and Rubella: Framework for the Verification Process in the WHO European Region*. Copenhagen. Available at [www.euro.who.int/\\_data/assets/pdf\\_file/0009/247356/Eliminating-measles-and-rubella-Framework-for-the-verification-process-in-the-WHO-European-Region.pdf](http://www.euro.who.int/_data/assets/pdf_file/0009/247356/Eliminating-measles-and-rubella-Framework-for-the-verification-process-in-the-WHO-European-Region.pdf).
- WRI (World Resources Institute) (2014). *Policy and Action Standard: an Accounting and Reporting Standard for Estimating the Greenhouse Gas Effects of Policies and Actions*. Washington, D.C. Available at [www.ghgprotocol.org/policy-and-action-standard](http://www.ghgprotocol.org/policy-and-action-standard).
- Zwick, Steve (2011). Ghana measures forests from sky and land. Ecosystem Marketplace. Available at [www.ecosystemmarketplace.com/articles/ghana-measures-forests-from-sky-and-land](http://www.ecosystemmarketplace.com/articles/ghana-measures-forests-from-sky-and-land).

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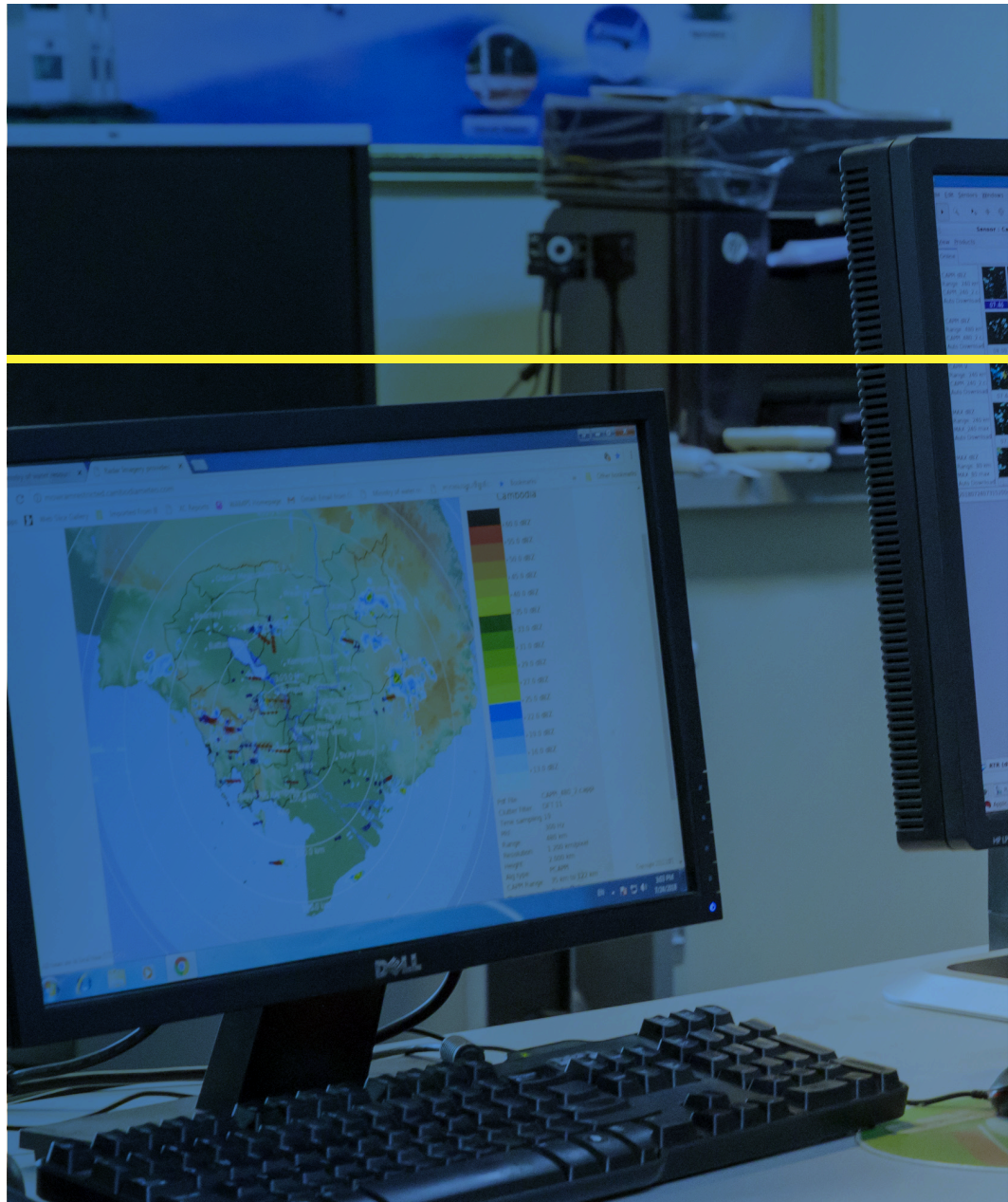
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**ICAT** | INITIATIVE FOR  
Climate Action  
Transparency