10 Monitoring performance over time

Monitoring performance of key indicators over time helps users assess progress and understand whether a policy is on track to achieve the desired transformational impacts. This chapter provides information on developing a monitoring plan and regularly following the performance of a policy. Users conducting ex-ante assessment can choose to skip this chapter.

Checklist of key recommendations

- Define a monitoring period that is long enough to capture the full range of transformational change impacts
- Develop a plan for monitoring key performance indicators
- Identify the key performance indicators that are used to track performance of the policy over time
- Monitor each key performance indicator over time, in line with the monitoring plan

10.1 Define the monitoring period and frequency

Monitoring over time creates a time series of data that is useful for assessing trends. It also provides an opportunity for modifications of policies during the implementation period if progress is not as planned. The first step is to define the monitoring period and monitoring frequency.

10.1.1 Monitoring period

The monitoring period is the time period over which the policy is monitored. It is a *key recommendation* to define a monitoring period that is long enough to capture the full range of transformational change impacts.

The monitoring period includes the assessment period, which is the time period over which GHG impacts resulting from the policy are assessed. There may be a number of assessments (and therefore assessment periods) during the monitoring period.

For ex-post assessments, users can choose to continue monitoring beyond the implementation period to track effects. For example, a policy with an implementation period of 2015–2030 should have at least the same monitoring period or longer (such as 2013–2032).

Data collection can begin before implementation starts. Monitoring in advance of the implementation period can help define the starting situation. It also improves the ability to monitor and evaluate at later stages. In general, the longer the monitoring period, the more robust the impact assessment.

10.1.2 Monitoring frequency

The monitoring frequency is generally decided at the beginning of the monitoring period. Users can

FIGURE **10.1**

Overview of steps in the chapter

Define the monitoring period and frequency (Section 10.1) → Develop a monitoring plan (Section 10.2) → Monitor indicators over time (Section 10.3)

monitor indicators at various frequencies, such as monthly, quarterly or annually, depending on the objectives. The appropriate frequency of monitoring should be based on the needs of decision makers and stakeholders. Refer to the ICAT *Stakeholder Participation Guide* for engaging stakeholders in this regard (Chapter 5).

Deciding on the monitoring frequency entails trade-offs between the type of impacts and indicators being monitored, cost and data availability. Clarity on the purpose of each indicator and an understanding of existing data-collection practices are helpful to determine frequency. For example, if a policy goal is to create green jobs over 20 years, the indicator relating to job creation can be monitored annually through an existing employment report regularly published by another agency. On the other hand, if the purpose is to measure the success of a six-month awareness-raising campaign by an agency, the indicator relating to the number of agency website visits or media articles can be monitored daily or weekly for the initial 1–2 months, and then monthly for the remainder of the campaign.

When a policy includes short-term, medium-term and long-term targets, monitoring should take place at a minimum at the critical milestones. For example, for a solar PV policy that intends to achieve 60% PV in the electricity mix by 2050, with interim targets of 20% by 2020, 30% by 2030 and 50% by 2040, monitoring of solar PV share in the electricity mix should occur every 10 years or more frequently. In the pre-development or take-off phase of transformational change (Chapter 7), users can decide to monitor indicators more frequently to identify early warning signs, underlying causes and possible intervention strategies to ensure that progress continues. For example, awareness-raising, capacity-building and high-level advocacy can be important for encouraging diffusion and scale-up of solar PV technologies when they are first introduced to a market. Therefore, indicators relating to these efforts, along with solar PV sales, can be monitored more frequently initially in such a market.

Users may wish to align the monitoring frequency with the five-year reporting cycles of NDCs and/or national climate or development reporting cycles, to embed monitoring within existing processes.

10.2 Develop a monitoring plan

A monitoring plan is important to consistently track progress of indicators over time in relation to goals, and to encourage documenting of assumptions and decisions for transparency. It is a *key recommendation* to develop a plan for monitoring key performance indicators.

To ensure that the monitoring plan is robust, users should consider including the following elements in the plan:

- **Roles and responsibilities.** Identify the entity or person responsible for monitoring key performance indicators, and clarify the roles and responsibilities of the personnel conducting the monitoring. See "Institutional arrangements for coordinated monitoring" in Section 10.3.

- **Competencies.** Include information about any required competencies and any training needed to ensure that personnel have the necessary skills.

- **Methods.** Explain the methods for generating, storing, collating and reporting data on monitored indicators. Include a brief description and source of data for each indicator.

- **Monitoring period and monitoring frequency.** Define the monitoring period and frequency for the policy. Section 10.1 discusses these in detail.

- **Collecting and managing data.** Identify the databases, tools or software systems that are used to collect and manage data and information. Understand what data exist and in what format, how the data are collected, and critical data gaps. Use this knowledge to develop a process to collect information, such as a description of the indicator, whether qualitative or quantitative data are needed, the source of data and any relevant assumptions. Table 10.1 provides a template for data collection for the hypothetical solar PV policy.

- **Quality assurance and quality control (QA/QC).** Define the methods for QA/QC to ensure that the quality of data enhance confidence in the assessment results. QA is a planned review process conducted by personnel who are not directly involved in data collection and processing. QC is a

procedure or routine set of steps that are performed by the personnel compiling the data to ensure the quality of the data.

- **Record keeping and internal documentation.** Define procedures for clearly documenting the processes and approaches for data collection, as well as the data and information collected. This is beneficial for improving the availability of information for subsequent monitoring events, documenting changes over time, and creating a historical record for archiving. Define the length of time that data will be archived.

- **Continual improvement.** Include processes for improving the methods for collecting and analysing data, and monitoring impacts.

- **Financial resources.** Identify the cost of monitoring and sources of funds.

Users should review and update the monitoring plan on a regular basis (e.g. annually or every two years). This is particularly important for transformational change because of its long-term nature. Some characteristics may become less significant during a certain period, while others may become more significant. Therefore, the monitoring plan should be revisited, because new indicators may need to be monitored, and some existing ones may no longer be of interest.

10.3 Monitor indicators over time

Monitoring of indicators helps users track performance of the policy over time. It is a *key recommendation* to identify the key performance indicators that are used to track performance of the policy over time.

For each characteristic included in the assessment, users identify indicators to monitor performance of the policy over time. Appendix A provides examples of indicators for process and outcome characteristics of transformational change. Section 7.1 also discusses selection of indicators to assess a policy's impact in relation to the starting situation. When selecting indicators, users should consider the intended objectives of monitoring, the nature of the policy, characteristics being assessed, stakeholder priorities, and feasibility. Feasibility may depend on data availability, resources needed and technical capacity to collect data. If data are not available or it is not cost-effective to collect data for an indicator, users can either consider using proxy data or select another indicator (where possible). Reasons for selecting indicators and data-related assumptions should be explained and justified.

An inclusive stakeholder consultation process can help ensure the relevance and completeness of selected indicators. The ICAT *Stakeholder Participation Guide* provides further information on designing and conducting consultations (Chapter 8).

TABLE **10.1**

Template for data collection (using the hypothetical solar PV policy example)

Indicator	Type of data (quantitative/ qualitative)	Monitoring frequency and date of collection	Data source and collection method	Responsible entity	Observed data (unit)
Number of new solar PV installation businesses	Quantitative	Annual (January 2015)	Business licence applications	Department of Commerce or Energy	8 businesses/ year
Number of trainings on solar PV installation	Quantitative	Monthly	Training workshop reports	Department of Energy	1 training/ month
% share of solar PV in electricity mix	Quantitative	Annual (January 2015)	Electricity generation data	Department of Energy	5%

It is a *key recommendation* to monitor each indicator over time, in line with the monitoring plan. Users take monitoring results into account when estimating transformational impacts ex-post. If monitoring indicates that the estimates underlying the qualitative scores used in the ex-ante assessment are no longer valid, they should document the differences and use the monitoring results to update the ex-ante estimates.

10.3.1 Institutional arrangements for coordinated monitoring

Information on key performance indicators can be dispersed among different institutions. Given the wide variety of data needed for impact assessment and the range of stakeholders involved, strong institutional arrangements play a central role in coordinating monitoring activities. A technical coordinator or a coordinating team can be assigned to lead monitoring, data collection and management where responsibilities are delegated to different institutions. For greater efficiency, users may wish to entrench these roles in institutions responsible for monitoring of long-term strategies, NDCs, or national climate or development plans. This also reduces the risk of funding gaps for monitoring over long periods. Further, depending on the data sources identified, it may be worthwhile pursuing formal partnerships or memorandums of understanding (MOUs) for longer-term data collection, and assessing opportunities such as a census to gather key data.

It can be useful to embed a collection of key indicators within the data gathering system of a relevant ministry, agency or department, or identify another existing reporting system within which specific key indicators could be housed. Countries may already have monitoring institutions in place as part of their national monitoring, reporting and verification (MRV) system. Users can expand the national MRV system to also monitor the impact of the policy.

Where strong institutional arrangements do not yet exist, countries can identify a coordinating body with adequate capacity and authority to be responsible for monitoring. If necessary, the coordination body should be provided with a legal mandate to collect and monitor information. Given the long-term nature of transformational change, a key consideration is to appropriately budget for monitoring and analysis, and secure the necessary financial resources. Institutional mandates strengthen the procedures and the system, and can help ensure funding.

11 Reporting

Reporting the results, methodology and assumptions used is important to ensure that the impact assessment is transparent, and gives decision makers and stakeholders the information they need to properly interpret the results. This chapter presents a list of information that is recommended to be included in an assessment report.

Checklist of key recommendations

- Report information about the assessment process and the transformational impacts resulting from the policy (including the information listed in Section 11.1)

11.1 Recommended information to report

It is a *key recommendation* to report information about the assessment process and the transformational impacts resulting from the policy (including the information listed below). A reporting template is provided for users on the ICAT website. Where two or more methodology documents are applied to a policy, the general information and policy description only need to be reported once. The list below does not cover all chapters in this document because some chapters provide information not relevant to reporting. Refer to the ICAT *Stakeholder Participation Guide* (Chapter 7) to learn more about providing information to stakeholders.

Chapter 2: Objectives of assessing transformational change
- The objective(s) and intended audience(s) of the assessment

Chapter 4: Steps and assessment principles
- Opportunities for stakeholders to participate in the assessment

- The principles on which the assessment is based

Chapter 5: Describing the policy, and the assessment boundary and period
- Whether the assessment applies to an individual policy or a package of related policies; if a package is assessed, which policies are included in the package

- A description of the policy (or package of policies), including the information in Table 5.1

- Whether the assessment is ex-ante, ex-post, or a combination of ex-ante and ex-post

- The assessment boundary, in terms of impacts covered, and geographical and sectoral coverage

- The assessment period

Chapter 6: Choosing which transformational change characteristics to assess
- The phase of transformation, to understand the context in which the policy is being implemented

- The policy's vision for transformational change, including the information in Table 6.3

- Identified barriers to transformational change, including the information in Table 6.4

- Relevant transformational change characteristics of the policy, including the information in Tables 6.6 and 6.7

Chapter 7: Assessment of the starting situation
- The starting situation for characteristics impacted by the policy, including the information in Tables 7.1 and 7.2

Chapter 8: Estimating transformational impacts ex-ante
- The final ex-ante assessment result, expressed in terms of the extent of transformation expected and the likelihood that the expected transformation can be realized over the assessment period, including the underlying rationale