PRACTICE BRIEFS

Steps to Identify and Use Adaptation Indicators for National Monitoring, Evaluation, and Learning Systems

NAP Global Network

June 2026

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About the NAP Global Network

The NAP Global Network was created in 2014 to support developing countries in advancing their NAP processes, and help accelerate adaptation efforts around the world. To achieve this, the Network facilitates South-South peer learning and exchange, supports national-level action on NAP formulation and implementation, and generates, synthesizes, and shares knowledge. The Network's members include individual participants from more than 170 countries involved in NAP processes. Financial support for the Network has been provided by Austria, Canada, Germany, Ireland, the Netherlands, the United Kingdom, and the United States. Additional support has been provided by the ClimateWorks Foundation. The Secretariat is hosted by the International Institute for Sustainable Development (IISD). For more information, visit www.napglobalnetwork.org.

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About These Practice Briefs

Practice briefs are action-oriented guides that translate the National Adaptation Plan (NAP) Global Network's toolkits and guidance notes into step-by-step instructions practitioners can use right away.

These practice briefs are aimed at national government teams involved directly or indirectly in monitoring, evaluation, and learning (MEL) systems for NAP processes, as well as the actors supporting them. The steps presented are designed to be practical and flexible. They distill key approaches and clear activities to guide countries to identify and use adaptation indicators as part of their national MEL systems. This brief is based on a literature review but revolves primarily around countries' experiences and good practices. It serves as a deep dive to complement the overview of indicators in the Toolkit for MEL for NAP processes (Beauchamp et al., 2024).

How to Use These Practice Briefs

Use this document as a practical guide rather than a report to read from cover to cover. You can work through it sequentially or go directly to the steps most relevant to where you are in your process.

Section 1 explains what adaptation indicators are, why they matter for NAP processes, and how different types of indicators serve different purposes.

Section 2 sets out the principles that underpin effective indicator design and the practical considerations that shape what is feasible in your context.

Section 3 walks you through a 10-step process for selecting and implementing adaptation indicators for your national MEL system, from clarifying your adaptation objectives through to analyzing, reporting, and communicating results.

Summary Takeaways

- Adaptation indicators are only as useful as the MEL system in which they sit. A small number of well-designed indicators can generate more useful evidence than a large set that stretches national capacity.
- Indicator selection should consider national contexts first: NAP objectives, existing data systems, and institutional realities, and align with global frameworks after.
- Designing indicators is an institutional process as much as a technical one. Ministries, local authorities, civil society, and communities must be involved from the outset to avoid undermining their use.
- A mix of indicator types is essential. Process and results indicators, quantitative and qualitative measures, and contextual climate parameters are all needed to capture what is changing, for whom, and under what conditions.

- Indicators must be piloted before full rollout. Testing in a limited number of sectors or regions, learning from implementation experience, and refining before scaling is consistently more effective—and less costly—than attempting system-wide implementation from the outset.
- An indicator system needs regular review, aligned with NAP process reviews, to ensure indicators remain relevant, data quality is sufficient, and findings are actually used to improve adaptation decisions.

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Glossary

Baseline	The value of an indicator at the starting point of a program or policy, against which future progress is measured (adapted from Organisation for Economic Co-operation and Development [OECD], 2008). Essential for setting meaningful targets and interpreting change over time.
Disaggregation	The breakdown of indicator data by relevant sub-groups of information, such as gender, age, geography, livelihood, or ecosystem. Essential for gender-responsive and socially inclusive monitoring, evaluation, and learning (MEL), as aggregated data can mask who is benefiting and who is being left behind (adapted from Asian Development Bank, 2021; OECD, 2008).
Impact	The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects (OECD Development Assistance Committee [DAC], 2023, p. 36). The impacts of adaptation actions may not be apparent until long after an intervention has ended. The term "impact" is distinct from "climate change impact," which describes the consequences of climate change, such as the occurrence of extreme weather events (Beauchamp et al., 2024).
Indicator	A quantitative or qualitative factor or variable related to an intervention and its results, or to the context in which it takes place (OECD, 2023). Indicators can be quantitative (such as the number of households with improved access to water) or qualitative (such as the perceived effectiveness of an adaptation measure). Indicators are assigned to specific levels of a theory of change to capture different types of changes (Beauchamp et al., 2024).
Learning	In the context of MEL systems for NAP processes, learning is the collective and deliberate process of acquiring, assessing, and disseminating new knowledge that results in changed or reinforced knowledge, attitudes, and behaviours related to climate change adaptation (Beauchamp et al., 2024).

Metadata	The set of methodological information that describes how indicator data is defined and measured (adapted from OECD, 2008). Among others, metadata can include the indicator name and definition, unit of measurement, data source, collection methodology and frequency, disaggregation requirements, baseline value and target. Indicator fact sheets can also document roles and responsibilities for data collection, quality assurance, and reporting, along with other metadata.
MEL system	A structured approach to monitoring progress, evaluating results, and fostering learning to ensure adaptation strategies are effectively achieving their intended outcomes. MEL systems help to check the assumptions that underpin intended outcomes, asking not only whether we are on track but also whether we have chosen the right path (Beauchamp et al., 2024).
Monitoring	The systematic tracking of implementation and performance that helps us to understand if progress is being made toward stated goals and to identify problems, and that consequently informs decision making. Monitoring involves continuous data collection, observation, and documentation to identify any deviations from the planned course and to take corrective action when necessary (Beauchamp et al., 2024).
Outcome	Short- and medium-term changes resulting from an intervention's outputs, which include changes in institutional and behavioural capacities (OECD, 2023). Outcomes can include changes in capacities and characteristics that enable people and systems to anticipate, avoid, plan for, cope with, recover from, and adapt to climate change and other hazards (Beauchamp et al., 2024).
Output	Products, goods, and services resulting from an intervention, which may also include short-term changes that contribute to its outcomes (OECD, 2023). Outputs of NAP processes might include policy actions, projects, programs, stakeholder engagement and awareness campaigns, and institutional structures and coordination arrangements (Beauchamp et al., 2024).
Proxy indicator	An indirect measure of change used when a preferred indicator cannot be directly measured due to data, methodological, or resource constraints (INTRAC, 2023). The proxy indicator measures change through a related factor or variable. The rationale and limitations should always be documented in the indicator metadata.

Target	A specific value set on an established indicator, defining the desired level of achievement within a given timeframe. A target is an objective, usually quantitative, defined as a value on an established indicator. "An indicator can exist without a target, but a target cannot exist without an indicator" (OECD, 2023).
Theory of change	A structured explanation of how and why a set of activities is expected to lead to desired outcomes and impacts under specific conditions. The theory of change represents how people understand change to occur in each context, including the assumptions about causal links between inputs, activities, and results. It provides the underlying causal narrative that the results chain and its associated indicators are designed to test and track over time (Beauchamp et al., 2024).
Triangulation	The use of multiple data sources, methods, or types of evidence to cross-check and validate findings, strengthening the credibility of MEL results, particularly for qualitative or outcome-level indicators (adapted from OECD, 2008).

1 Introduction

Countries are increasingly using national adaptation plan (NAP) processes, including national and sectoral plans, strategies, and other processes to identify and implement adaptation actions, to address their medium- and long-term climate risks. Understanding whether and how these processes reduce intended risks and vulnerabilities is critical for their effectiveness and fairness. Over the past decade, countries have increasingly designed and implemented monitoring, evaluation, and learning (MEL) systems for their NAP processes to understand if adaptation policies and actions work, how they work, and for whom. Under the UAE Framework for Global Climate Resilience (UAE FGCR), all countries should aim to have designed, established, and operationalized a MEL system for national adaptation efforts by 2030 (United Nations Framework Convention on Climate Change [UNFCCC], 2023). National MEL systems also provide critical evidence for national progress requirements, such as the Biennial Transparency Reports (BTRs), of which the second round is due by the end of 2026 (Beauchamp et al., 2024; Guerdat, 2025).

Indicators serve multiple functions in a national MEL system. They support accountability by providing evidence of progress to decision-makers and development partners. They enable learning by revealing what is working and what is not. They also provide the information countries need to report internationally, connecting national efforts to international reporting obligations under the Enhanced Transparency Framework (UNFCCC, 2018). The adoption of the Belém Adaptation Indicators (BAIs) at the 30th United Nations Climate Change Conference (COP 30) in 2025, the 59 voluntary, country-driven indicators covering all UAE FGCR targets (see Appendix A), has further raised interest in how countries can best identify and use adaptation indicators as part of their MEL systems.

Designing an effective indicator system, however, is not simply a technical exercise. It requires understanding adaptation objectives, institutional landscapes, existing data systems, and how findings will be used. Indicators that appear rigorous on paper but cannot be collected, or that measure the wrong things, can impose a reporting burden without yielding useful knowledge. This brief supports members of NAP teams involved directly or indirectly in MEL systems for NAP processes, and those supporting them in identifying and using adaptation indicators for their national MEL systems effectively and efficiently. It focuses on the steps to build indicator frameworks that are grounded in national adaptation priorities and useful for the decisions that national and subnational actors need to make, while keeping global frameworks in mind.

1.1 What Are Adaptation Indicators, and Why Do They Matter?

Indicators are quantitative or qualitative factors or variables related to a policy, project, or action and its results, or to the context in which it takes place (OECD, 2023). Indicators are an important part of MEL systems because they provide continuous and structured data that governments can use to track whether changes are occurring as a result of policies and actions. By tracking the same information consistently, indicators allow identifying whether planned actions are being implemented and whether change is occurring as intended. When well designed and embedded in a functioning MEL system, they are an important source of data sets over time and across different social groups that are needed to feed longer-term evaluations and decisions.

Indicators serve multiple functions in a national MEL system. They support accountability by providing evidence of progress to decision-makers, parliaments, and development partners. They enable learning by revealing trends in what is working and what is not, and by flagging where adjustments are needed. They also help connect national efforts to international reporting obligations, such as BTRs, Adaptation Communications, and national communications under the Enhanced Transparency Framework, and increasingly to inform the global stocktake process under the Paris Agreement.

Box 1. Limitations of indicators and linkages to MEL systems

Indicators are a critical component of MEL systems, but they function best as one input among several components of a well-designed system alongside evaluations, peer learning, and structured reflection. In isolation, indicators are inert. They require a theory of change (ToC) to anchor them, reliable data collection to populate them, structured evaluations to explain why changes have occurred and for whom, and learning moments to act on what they reveal. When designing indicators, the following limitations should be kept in mind:

- Indicators signal whether change is occurring, but not why or how. Attributing whether a change is due to a specific policy or action is inherently difficult and cannot be done with monitoring indicators alone.
- Indicators reflect what was anticipated. Defined before implementation, indicators tend to measure expected changes and can miss unintended consequences and changes.
- Indicators tend to focus on short-term change. Most adaptation indicator sets concentrate on what is easy to count in the short term—trainings delivered, policies adopted, projects completed—rather than whether resilience has actually improved. Adaptation outcomes that often matter most tend to materialize over years or decades.
- Indicators are only as good as data quality and availability. Weak statistical systemsand infrequent collection can render even well-designed indicators unreliable, which is a particular challenge in many country contexts.

However, indicators come with limitations. Because they need to be specific, indicators cannot capture the complexity of adaptation actions, and thus should not be used by decision-makers as a substitute for evaluation and learning. Over-reliance on them risks crowding out the more interpretive, adaptive work that genuine learning in adaptation systems requires (see Box 1).

1.2 Types of Indicators

There is no single, universal set of indicators for adaptation that will work across all contexts (New et al., 2022). Unlike mitigation, where greenhouse gas emissions provide a common unit of measurement, adaptation is inherently context-specific. For example, what resilience looks like in a small island state facing sea level rise is different from what it looks like in a landlocked country managing recurrent drought. Consequently, adaptation indicators must be tailored to both the context and the purpose of adaptation policies and actions, as well as to their related MEL systems.

Adaptation indicators can be categorized in two complementary ways: in terms of types of data they capture, and the types of changes they capture (see Table 1).

Indicators can be either quantitative, based on measurable numerical metrics such as percentages, ratios, or numbers, or qualitative, based on narrative assessments that assess changes over time against specific, predetermined criteria. Using a mix of qualitative and quantitative indicators is essential to capture both tangible, observable changes, as well as the more intangible dimensions of progress. For example, adaptation progress often involves behavioural or institutional change that cannot be captured by numbers alone: shifts in how decisions are made or how risk is perceived need to be captured qualitatively.

Table 1. Common types of indicators used in MEL systems for NAP processes

Indicator type	Description	National MEL system examples from NAP documents	Thematic (health) examples	Dimensional (planning) examples
Input	Resources invested in an intervention: financial, human, and physical assets, policy choices, and institutional capacities. Inputs are not a result but can form part of a ToC.	**Albania**: Climate focal points and institutional mandates designated for agricultural resilience and flood risk management. **Cambodia**: Institutional readiness resources and policy frameworks in place.	• Budget for climate-health preparedness. • Climate focal points designated in health ministries.	• Budget allocated to national adaptation planning processes. • Institutional arrangements and dedicated units for NAP development in place.
Process	Whether policy processes are unfolding as intended in terms of quality, participation, coordination, and adherence to timelines.	**Cambodia**: Status of climate policy and strategies. **Kenya**: Proportion of county governments that adopt and implement local disaster risk reduction strategies in line with national strategies.	• Coordination between health, meteorological, and disaster risk agencies. • Regularity of climate risk reviews.	**BAI 10(b)(ii)**: Status of having gender-responsive adaptation plans, policy instruments, and planning processes and/or strategies in place.

Indicator type	Description	National MEL system examples from NAP documents	Thematic (health) examples	Dimensional (planning) examples
Output	Direct products, goods, and services resulting from an intervention, including short-term changes that contribute to outcomes.	**Grenada**: Percentage of newly approved buildings on mainland Grenada that have installed rainwater or recycled water harvesting and storage systems. **Kenya**: Area under irrigation increased (as part of an adaptation action).	**BAI 9(c)(vii)**: Coverage of essential health services that are supported by adaptation measures to ensure continuity during and following climate-related events. **BAI 9(c)(viii)**: Proportion of health practitioners who have received capacity-building support pertaining to climate change adaptation and health.	**BAI 10(b)(i)**: Status of national adaptation plans, policy instruments, and planning processes or strategies in place. **BAI 10(b)(iii)**: Existence of national adaptation plans, policy instruments, planning processes and strategies that have been informed by Traditional Knowledge, knowledge of Indigenous Peoples, and local knowledge systems.
Outcome	Short- to medium-term changes in institutional and behavioural capacities resulting from outputs (OECD, 2023).	**Albania**: Average farm yields per hectare stable in years with drought events. **Grenada**: Percentage of new Public Sector Investment Programme projects integrating adaptation into design rated high climate relevance.	**BAI 9(c)(ii)**: Level of incidence of climate-sensitive infectious diseases, including as an outcome of adaptation actions where applicable **BAI 9(c)(iii)**: Rate of morbidity associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions where applicable.	• Extent to which adaptation considerations are mainstreamed into national and sectoral development strategies and budgets. • Extent to which marginalized groups influence national adaptation planning processes.

Indicator type	Description	National MEL system examples from NAP documents	Thematic (health) examples	Dimensional (planning) examples
Impact	Long-term changes and ultimate effects, such as increased resilience and reduced risk and vulnerability.	**Albania**: Reduction in the average damages per flood event for each subsequent 5-year period. **Kenya**: Improved productivity and resilience of farmers and pastoralists.	Reduction in health risks and/or mortality related to climate changes and risks as a result of climate-resilient health actions or systems.	Increased household and/or individual resilience to climate changes and risks as a result of comprehensive adaptation plans or strategies in specific areas/for specific hazards.
Context and environmental parameters	External political, socio-economic, institutional, environmental, and climatic conditions affecting implementation. Variables that can influence them—essential for interpreting results.	**Cambodia**: Percentage of communes vulnerable to climate change based on vulnerability index. **Grenada**: Mobility patterns of at-risk populations.	Frequency and intensity of heatwaves and floods. Health system capacity and coverage.	Quality of national governance and level of political stability. Institutional and technical capacity for evidence-based planning.

Note: The examples provided in the table are adapted from indicators in the NAP documents of Albania, Cambodia, Grenada, and Kenya, and on the UAE FGCR's health thematic target and the planning dimension target using the BAIs when applicable, for illustrative purposes.

Source: Authors.

Designing Indicators Around a ToC

Indicators also vary according to the types of changes they capture. A useful starting point for designing indicators is a policy, action, or intervention's ToC. A ToC articulates how change is expected to be achieved as part of an intervention through a chain of results (causal pathways), connecting how the inputs transform into outputs, through to outcomes, and impacts. A ToC also describes the processes involved and the assumptions linked with how changes will happen, such as the institutional, environmental, and climate conditions under which changes are expected to occur.

Designing Indicators With Gender and Social Inclusion in Mind

Climate change affects people differently depending on gender, age, socio-economic status, Indigeneity, disability, and other intersecting factors. Indicators designed without attention to activities and outcomes that are gender equity and social inclusion (GESI) specific risk masking potential inequities in who is benefiting from adaptation actions, who is being left behind, and whether adaptation actions and policies are supporting positive changes toward greater gender equality and social inclusion. In addition to reflecting specific GESI-related issues, indicators that track results for individuals or groups should be disaggregated by different social categories such as gender, age, Indigeneity, ethnicity, and disability. These should be determined based on national and local contexts and in consultation with representatives of marginalized groups (Beauchamp et al., 2024). GESI considerations should also shape who designs the indicators to ensure GESI experts and stakeholders are at the table, and how data is collected: participatory methods that actively engage different social groups, representative data collection teams, and qualitative approaches that capture differentiated experiences are all part of a gender-responsive indicator system (NAP Global Network & UNFCCC, 2019).

Box 2. Distinguishing indicators from targets

These two concepts are closely related but serve different functions. In the words of the OECD DAC (OECD DAC, 2022, p. 29), a target is "an objective, usually quantitative, defined as a value on an established indicator," generally set at the outset of an intervention and expected to be achieved by a specific point in time. In practice, "proportion of households with access to resilient water supply" is an indicator; "70% of households with access to resilient water supply by 2030" is a target. An indicator can exist without a target, but a target cannot exist without an indicator.

2
Considerations and Principles for Selecting and Implementing Adaptation Indicators

Identifying and implementing adaptation indicators is as much an institutional process as it is a technical one. The principles below reflect the conceptual foundations of good indicator design. The practical considerations that follow address the institutional and operational realities of putting those principles into practice.

Principles

- **ground indicators in the ToC**: Indicator selection must start from a clear understanding of what the NAP process is trying to achieve and how. Using a ToC as a basis for identifying the causal logic of an intervention can help identify the required indicators at different levels of results. This also helps tracing a logical and justifiable link to an adaptation rationale, such as reducing climate risk, exposure, or vulnerability.
- **respond to national context first**: Adaptation is inherently context-specific: the climate risks, sectoral priorities, institutional arrangements and data systems that shape what is relevant and feasible vary significantly from one country to the next. National and local contexts should drive indicator selection. Alignment with international frameworks is important when they are coherent with domestic priorities and data availability, but should not substitute national grounding.
- **apply specific, measurable, achievable, relevant, and time-bound criteria**: Good indicators are specific, measurable, achievable, relevant and time-bound (SMART). They clearly define what is being measured, are supported by data that can be collected consistently, set targets that are realistic given available resources and institutional capacity, align directly with adaptation priorities, and track change within a defined timeframe.
- **use a mix of indicator types**: Combine process and results indicators, quantitative and qualitative measures, and contextual climate parameters. The right balance will shift over time, for example, with output and process indicators often more present in early years of NAP implementation when outcome-level changes are not yet visible.
- **embed social disaggregation from the outset**: Indicators should be designed to capture the differentiated vulnerabilities, capacities, and experiences of different social groups—including women, men, youth, Indigenous Peoples, and marginalized communities. This means defining disaggregation dimensions at the design stage, not adding them retrospectively.

- **treat indicators as one part of a broader MEL system**: Indicators fulfill their function only when embedded in a MEL system with reliable data collection, structured review processes, and a live ToC. They signal whether change is occurring but cannot account for why. Genuine learning requires interpretive work that combines data from indicator tracking with information gained through structured evaluation and review exercises.

Considerations

Designing indicators is only the first step. The following considerations address the institutional, technical, and relational dimensions of putting indicators into practice.

- **build on what already exists**: Before designing new data collection mechanisms, it is essential to take stock of what is already in place—existing national statistics, sectoral monitoring systems, environmental databases, and project-level MEL frameworks. Integrating adaptation indicators into existing national platforms reduces reporting burden, improves sustainability, and strengthens the credibility of the data.
- **prioritize quality over quantity**: It is tempting to track everything. A smaller number of well-designed, rigorously monitored indicators will consistently generate more useful evidence than a large set that stretches institutional capacity beyond what is sustainable. Countries should aim for a set that can be monitored consistently over time, that can be expanded on, and that generates information that is actually used in decision making.
- **engage all relevant stakeholders from the start**: Ministries, local authorities, civil society organizations, and other reporting partners must be involved in indicator development from the earliest stages. Partners who understand what an indicator measures and why it matters are far more likely to provide reliable, timely data. Co-ownership is not only good practice—it is essential to data quality. Indicators imposed from above, without meaningful engagement with those responsible for reporting, rarely function well in practice.
- **clarify ownership and build coordination mechanisms**: For each indicator, it should be clear which institution is responsible for data collection, quality assurance, and reporting—and that institution should have agreed to and be resourced for that role. Ambiguity about roles and responsibilities is one of the most common reasons indicator systems fail in practice. Data-sharing arrangements must be established deliberately and maintained over time.
- **ensure clarity and consistency between national and subnational levels**: Where indicators are collected at the subnational level and aggregated nationally, agreed definitions, harmonized collection methods, and consistent aggregation protocols are essential. This is particularly important for cross-cutting and transboundary indicators.
- **validate and pilot before scaling**: Stakeholder validation and a rigorous pilot phase are not optional steps—they are the quality gates that determine whether an indicator system will function in practice, not just on paper. Piloting in one sector or geography, learning from implementation experience, and expanding progressively is consistently more effective than attempting full-scale rollout from the outset.

- **sustain capacity and secure resources across actors**: MEL capacity across national, subnational, and sectoral levels requires ongoing investment in expertise, tools, and systems for long-term data collections—not one-off training. Countries should also ensure that the financial resources, technology, and technical assistance needed to sustain data collection, analysis, and reporting are explicitly planned and secured as part of the MEL system design.

Box 3. The UAE FGCR and the BAIs

The **UAE FGCR** was established in 2023 at COP 28 (Decision 2/CMA.5) to guide the operationalization of the Paris Agreement's Global Goal on Adaptation (GGA) and the review of collective progress. The framework supported an increase in visibility and accountability for adaptation globally. It provided a set of 11 targets covering 4 key dimensions of the iterative adaptation cycle, and 7 thematic areas that are considered global priorities for adaptation (see Figure 1). The UAE FGCR also outlines key cross-cutting considerations.

Dimensional Target 10(d) specifically calls on all countries to have "designed, established and operationalised a MEL system for their national adaptation efforts by 2030" (UNFCCC, 2025). Countries can share the evidence generated through their national MEL systems using Biennial Transparency Reports, Adaptation Communications, and national communications, along with national progress reports. This information is critical to inform the global stocktake assessment of collective progress against the GGA every 5 years (Beauchamp et al., 2024).

While national MEL systems should primarily serve national and local contexts, the UAE FGCR helps countries to structure their global reporting exercises, using nationally appropriate indicators.

The BAIs, adopted at COP 30 in November 2025 (Decision 12/CMA.7), are 59 voluntary, non-prescriptive, and country-driven indicators covering all 11 UAE FGCR targets. While currently lacking methodologies and metrics, the 2025–27 Belém to Addis vision for adaptation work aims to further develop their methodology, increase their political alignment, and deliver further guidance to implement them by COP 32. To feed into this process, countries are encouraged to test the BAIs—along with other relevant adaptation indicators—as part of their national MEL systems for adaptation. See Appendix A for the list of BAIs.

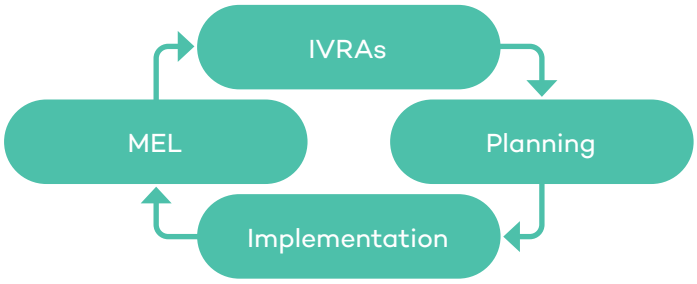
Figure 1. The UAE Framework for Global Climate Resilience

Purpose of the UAE FGRC:
To guide the achievement of the global goal on adaptation and the review of overall progress in achieving it

Sectors

Water	Food & agriculture	Health
Biodiversity & ecosystems	Infrastructure & human settlements	
Poverty eradication & livelihoods	Cultural heritage	

Dimensions of the iterative adaptation cycle



Sources of information

Adcoms	Reports from UN and international organizations
NDCs	National communications
NAPs	Voluntary submissions
BTRs	Other sources
IPCC reports	

National MEL systems for NAP processes

Cross-cutting considerations

- Country-driven, gender-responsive, participatory, and fully transparent approaches
- Human rights approaches, intergenerational equity and social justice, taking into consideration vulnerable ecosystems, groups, and communities including children, youth, and persons with disabilities
- Guided by the best available science, including through use of science-based indicators, metrics and targets
- Traditional knowledge, Indigenous Peoples' knowledge, and local knowledge systems
- Ecosystem-based adaptation, nature-based solutions, locally led and community-based adaptation, disaster risk reduction
- Intersectional approaches, private sector engagement, maladaptation avoidance, recognition of adaptation co-benefits and sustainable development

Source: Beauchamp et al., 2024.

3
Steps to Identify and Use Adaptation Indicators for Your National MEL System

This section presents eight overarching steps for identifying and using adaptation indicators for national MEL systems (Table 2). While these steps are ordered based on an hypothetical case where a country would start an ideal system from scratch, most countries already have existing systems that contribute to national MEL and reporting. As such, countries can tackle or combine the steps and activities presented in a different order depending on their context. The content is based on the good practices in literature and on experience supporting more than 40 national governments across Asia, the Pacific, Africa, and Latin and Central America in designing, piloting, and institutionalizing MEL systems for national adaptation planning since 2014, as well as a literature review of good practices.

Table 2. Summary of the eight steps to identify and implement adaptation indicators for national MEL systems

Step	Title	Description
Design and selection steps (1–4)		
1	Clarify adaptation objectives and expected results	Define what the NAP processes seek to achieve and at different time scales through a ToC, anchoring subsequent indicator choices.
2	Take stock of existing systems, needs, gaps, and institutions	Map what data already exists, who collects it, and where institutional or capacity gaps lie. This determines what is feasible in later steps.
3	Identify indicators and align with global frameworks	Develop a longlist drawing on existing indicators, sectoral priorities, national statistics and global frameworks, including a review of GGA indicators for relevance to the national context before shortlisting.
4	Define indicator fact sheets and a monitoring plan	Define indicator fact sheets that document each indicator fully, develop tools and materials to support data collection and reporting, and anchor the indicators in a monitoring plan outlining roles and responsibilities.

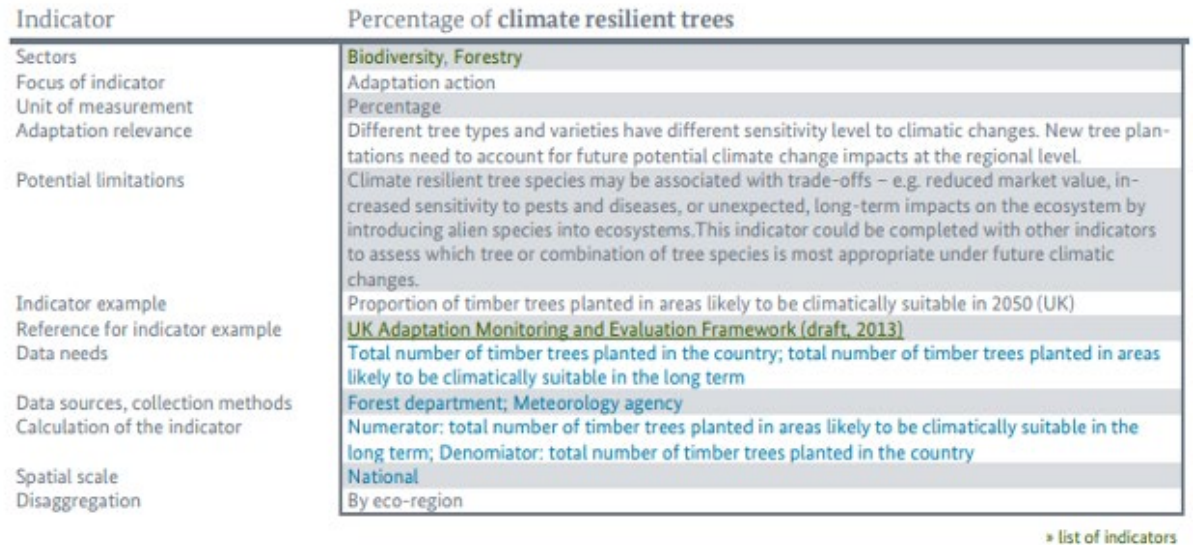
Step	Title	Description
Implementation steps (5–7)		
5	Validate, pilot, and refine with stakeholders	Review proposed indicators with key stakeholders, to confirm they are understood, feasible, and meaningful. Test selected indicators in a limited number of sectors or regions across a full monitoring cycle and refine for scale-up.
6	Institutionalize and integrate indicators into planning and reporting cycles, and collect and compile data	Embed indicators into national planning, budgeting, and reporting cycles. Establish starting values for all indicators, conduct ongoing data collection at the agreed frequency, compile results in data management systems, and flag data quality issues. Use findings to refine methodologies and roles, then formalize the system through training, institutional mandates, and, if possible, official rules and legislation.
7	Analyze/use indicator data to inform reporting and decisions	Analyze indicator data as part of monitoring reports, wider evaluations, and reporting exercises to generate insights and knowledge for different audiences. Populate national and international reporting obligations and facilitate structured learning moments.
Learning step (8)		
8	Review, learn, and adapt	At agreed intervals, review indicator relevance, data quality, reporting capacity, and alignment with evolving priorities. Apply structured criteria to retain, revise, or replace indicators, and feed findings back into Steps 1 to 4.

3.1 Design and Identification Steps (1–4)

Step 1	Clarify adaptation objectives and expected results
Description	Indicators are only as useful as the objectives they are designed to measure. This step establishes the foundation for all subsequent indicator choices by clarifying what the NAP processes—and the MEL system within them—are trying to achieve, at what level of the ToC, and for whom. Without this clarity, indicator selection risks measuring activity rather than progress toward meaningful adaptation outcomes.
Activities under this step	1. Establish and/or confirm the team, working group, or interministerial committee that will lead the indicator development process. 2. Review the NAP, adaptation strategy, or sectoral plans to identify the stated adaptation objectives, expected results, and intended beneficiaries. 3. Map these objectives against a ToC. The ToC should distinguish between short-term outputs, medium-term outcomes, and longer-term impacts, and outline the assumptions under which the changes will occur. 4. Define the purpose of the MEL system and identify key learning and decision-making questions to guide indicator selection, clarifying the intended audiences and how data will be used: for progress tracking, adaptive management, policy learning, accountability, and/or resource allocation. 5. Establish a set of criteria for selecting indicators, drawing on the principles in Section 2, including relevance to adaptation objectives, feasibility, SMART compliance, and GESI considerations. 6. Define a work plan for the indicator development process, including reviews, sign-offs, timelines, and budget.
Common milestones/ outputs	• Documented adaptation objectives and expected results of the intervention, organized by level of the ToC. • Set of agreed criteria for selecting indicators. • Workplan for the indicator development process that identifies audiences, required formats, and timelines for the indicator data, along with assigned team and budget.
Tips	• If a ToC has not yet been developed for the NAP process, this step is an opportunity to develop or adapt one, even a simplified version. This can be done using existing objectives and performance measurement frameworks. Investing time here can help identify relevant indicators in Steps 3 and 4. • Tensions may arise when MEL serves multiple purposes or different stakeholders have different priorities: surfacing and discussing these tensions early is far preferable to discovering them during data collection.

Step 1	Clarify adaptation objectives and expected results
	• Make sure GESI actors are included in discussions, and those dimensions are reflected in the ToC and objectives and in the learning questions from the outset, not added as an afterthought in later steps. • Clarify the roles of the ministry or agency coordinating the NAP process as lead, with links to sectoral and technical ministries, finance and planning ministries, and ministries responsible for gender and social issues, local communities, and Indigenous Peoples contributing.
Resources and examples	• NAP Technical Guidelines, Section 5.1 on ToC (Least Developed Countries Expert Group, 2025) provide guidance on developing theories of change as a foundation for adaptation planning and MEL system design within NAP processes. • The NAP Global Network and UNFCCC Adaptation Committee's Toolkit for MEL for NAP Processes provides practical guidance on developing theories of change as a foundation for MEL system design across the iterative adaptation cycle. • Bours et al.'s McGill & Pringle's guidance note (2014) focuses on the ToC approach to climate change adaptation programming. • Scientific and Technical Advisory Panel to the Global Environment Facility (2022) Decision Tree for Adaptation Rationale offers a structured tool to help practitioners articulate and document the rationale for adaptation interventions, supporting results chain development and indicator selection.

Figure 2. Examples of indicator fact sheets in forestry and biodiversity



Indicator	Percentage of **climate resilient trees**
Sectors	Biodiversity, Forestry
Focus of indicator	Adaptation action
Unit of measurement	Percentage
Adaptation relevance	Different tree types and varieties have different sensitivity level to climatic changes. New tree plantations need to account for future potential climate change impacts at the regional level.
Potential limitations	Climate resilient tree species may be associated with trade-offs – e.g. reduced market value, increased sensitivity to pests and diseases, or unexpected, long-term impacts on the ecosystem by introducing alien species into ecosystems.This indicator could be completed with other indicators to assess which tree or combination of tree species is most appropriate under future climatic changes.
Indicator example	Proportion of timber trees planted in areas likely to be climatically suitable in 2050 (UK)
Reference for indicator example	UK Adaptation Monitoring and Evaluation Framework (draft, 2013)
Data needs	Total number of timber trees planted in the country; total number of timber trees planted in areas likely to be climatically suitable in the long term
Data sources, collection methods	Forest department; Meteorology agency
Calculation of the indicator	Numerator: total number of timber trees planted in areas likely to be climatically suitable in the long term; Denomiator: total number of timber trees planted in the country
Spatial scale	National
Disaggregation	By eco-region

» list of indicators

Source: Hammill et al., 2014b.

Step 2	Take stock of existing MEL systems, needs, gaps, and institutions
Description	Before identifying or designing new indicators, it is essential to understand what data is already collected, by whom, at what frequency and quality, and where institutional and capacity gaps exist. Doing a stocktake or a diagnostic study, of existing MEL systems prevents duplication, determines what is feasible in later steps, and maps who holds data, who has mandates for reporting, and what coordination mechanisms exist or need to be built.
Activities under this step	1. Review existing national and sectoral MEL systems, monitoring frameworks, national statistics, and data platforms to identify indicators already in use that are relevant to adaptation objectives. 2. Review impact, vulnerability, and risk assessments conducted as part of the NAP process or related national assessments. They can provide contextual information to inform indicator formulation and serve as baselines over time. 3. Identify reporting requirements and timelines based on the national decision-makers, local authorities, communities, and international bodies to be informed. 4. Map the institutional landscape—which actors collect relevant data, what are their mandates, and what data-sharing arrangements are in place or absent. 5. Assess existing data quality, accessibility, and consistency, including whether data is disaggregated by gender, age, geography, or other relevant dimensions. 6. Hold consultations across stakeholders to gather inputs and feedback from all relevant ministries, agencies, and subnational authorities, and from other actors such as civil society and the private sector. This step is key to avoiding duplication and ensuring representative systems. 7. Identify current gaps and needs: where no relevant data exists, where data quality is insufficient, or where institutional mandates and capacities are unclear or weak. 8. Document findings in a diagnostic report with a longlist of indicators to shortlist in Step 3 and to inform institutional planning in Steps 4 and 6. Validate and communicate to ensure the diagnostic is accurate and complete.
Common milestones/ outputs	• A longlist of the existing and relevant indicators and data systems that could provide information and input to the adaptation MEL system. • Institutional mapping of data custodians, mandates, and coordination mechanisms in and outside the government. • Diagnostic report on data gaps, quality issues, capacity constraints, and recommendations.

Step 2	Take stock of existing MEL systems, needs, gaps, and institutions
Tips	• Check if a stocktake of existing indicators and MEL systems was conducted as part of the initial NAP formulation process and review it, but do not assume it covers MEL-specific needs. A separate, MEL-focused diagnostic is often necessary to identify data and institutional gaps specific to indicator development. • Where impact, vulnerability, and risk assessments exist, examine whether they include disaggregated analysis of risks and vulnerabilities by gender and other social dimensions: this will directly inform gender-responsive and socially inclusive indicator design in Steps 3 and 4. • Be attentive to data that exists but is not shared across institutions: memorandums of understanding and data-sharing protocols may need to be established before data can be used. • Involve the ministry or agency coordinating the NAP process as lead, alongside sectoral and technical ministries, the national statistics office, gender and Indigenous Peoples' focal points, subnational authorities, civil society, and community representatives, particularly on equity dimensions, and private sector actors.
Resources and examples	• This NAP GN report shows how to use climate risk assessment to measure adaptation success. • Kiribati and Tuvalu used integrated vulnerability assessments to establish national baseline databases that now inform ongoing MEL for their NAP processes. • Uganda conducted a scoping study of existing climate processes and related MEL elements to identify entry points and gaps before developing its MEL framework.

Step 3	Identify potential indicators and align with global frameworks
Description	This step produces a candidate longlist of indicators that address local, sectoral, and national priorities that are based on existing data systems and that align with global frameworks, including the UAE FGCR, the Sendai Framework, the Convention on Biological Diversity, and the SDGs, among others. This step then works toward a shortlist based on agreed criteria to ensure that national indicators are grounded in local contexts and needs, while remaining coherent with global commitments.
Activities under this step	1. Drawing on the objectives and results chain from Step 1 and the diagnostic from Step 2, identify a longlist of candidate indicators across types and levels of the ToC and its assumptions: inputs, processes, outputs, outcomes, impacts, and contextual parameters. Consult sectoral ministries and technical agencies to surface indicators already in use and ensure buy-in from the outset. 2. Review global frameworks, including the UAE FGCR's BAI (see Box 3 and Appendix A), the Sendai Framework, the Convention on Biological Diversity and the SDG frameworks for indicators relevant to national priorities and data availability, drawing on the contextual analysis from Step 2. 3. Include both quantitative and qualitative indicators to capture technical, institutional, and behavioural dimensions of adaptation. 4. For areas where no direct measure exists, identify proxy indicators and document gaps for follow-up during the pilot phase in Step 5. 5. Compile a longlist grouped by results level and sector, then apply the SMART criteria and selection criteria established in Step 1 to assess and shortlist the longlist.
Common milestones/ outputs	• Shortlist of indicators by results level and sector, assessed against SMART and selected criteria from Step 1 and the longlist from Step 2. • Mapping of shortlisted indicators against the UAE FGCR targets and other relevant global frameworks. • Note of gaps where proxy indicators have been identified.
Tips	• Adapt global indicators to national data realities rather than adopting them wholesale: adapt them if fully or partially relevant and focus on developing nationally specific indicators if no global indicator is appropriate. • Use globally comparable indicators where appropriate, and complement them with locally relevant, context-specific indicators where global ones do not adequately capture national adaptation realities. • Include indicators that track the integration of climate change adaptation into sectoral policies, plans, and budgets, as this is a common NAP objective that is often underrepresented in indicator sets.

Step 3	Identify potential indicators and align with global frameworks
	• Prioritize overlap with indicators already used in nationally determined contributions, BTRs, and other national planning frameworks to avoid duplication of reporting effort. • Involve the national statistics office, sectoral ministries and technical agencies, including GESI actors, UNFCCC and other global frameworks' national focal points, and civil society with sectoral or community-level expertise.
Resources and examples	• The BAIs (Decision 12/CMA.7): The UNFCCC adopted a set of 59 voluntary indicators to support assessing progress toward the GGA, based on a list of 100 potential indicators developed under the UAE–Belém work programme. • The Food and Agriculture Organization of the United Nations published a report for countries to explore how to integrate reporting for adaptation with global reporting, including for SDGs and the Sendai Framework for Disaster Risk Reduction, with a focus on agriculture. • This United Nations Development Programme report on gender-responsive indicators provides guidance on designing gender-responsive indicators for sectoral climate actions, covering indicator types, sex-disaggregated data, and gender analysis integration. • Brazil's NAP document presents a four-indicator-type MEL system that combines climate parameters, adaptation actions, processes, and results, offering a useful model for structuring accessible national reporting.

Step 4	Define indicator fact sheets and a monitoring plan
Description	This step documents each shortlisted indicator by capturing the information needed to collect, manage, and report data consistently. Each indicator needs to be fully documented in a fact sheet, with information such as the indicator methodologies, metrics, and other metadata. The fact sheets need to be organized into a monitoring plan that maps out who does what, when, and with what resources. Once validated and piloted at the next step, the fact sheets and monitoring plan together will be the operational backbone of the indicator framework.
Activities under this step	1. Prepare an indicator fact sheet for each shortlisted indicator, specifying: its definition, unit of measurement, data source, methodology for collection and analysis, collection frequency, disaggregation requirements, baseline value, target, responsible institution, quality assurance procedure and reporting pathway (see Figure 2). 2. Confirm baselines from existing data. If baselines do not yet exist, agree on the methodology for establishing a baseline and when data will be collected. Define realistic and time-bound targets based on the established baseline. 3. Define a draft monitoring plan that consolidates all indicator fact sheets into an operational framework specifying who collects, analyzes, and reports data, what, when, and how, along with the budget related to these activities, including for ongoing maintenance rather than one-off setup costs. This draft will be validated and piloted in Step 5 before finalization. 4. Design or adapt data collection tools, reporting templates, and data management protocols based on the fact sheets and targeted for actors using the monitoring plan. 5. Establish data management arrangements, including a data flowchart that maps how data moves from collection through to analysis and reporting, protocols for data storage, quality assurance and access, and identifying digital platforms or centralized repositories to manage indicator data. 6. Build a data cycle timeline based on the entry points for evidence from indicators into planning, budgeting, reporting, and decision-making cycles identified in Step 2, including national development plans and strategies, reports to government and parliament, sectoral reviews, BTRs, and Adaptation Communications. Planning this ahead can help build synergies across reporting exercise, hence reducing burden and avoiding siloes.

Step 4	Define indicator fact sheets and a monitoring plan
Common milestones/ outputs	• Completed indicator fact sheets for all shortlisted indicators, with baselines and targets. • Operational monitoring plan with roles, timelines, and budgets. • Data collection tools, templates and management protocols documented or under development, including data flowchart.
Tips	• Standardize the metadata format[1] across sectors to facilitate aggregation and national-level reporting. • Use the fact sheet as a working document to facilitate exchange and consultation between the involved actors rather than a form completed in isolation: peer review between sectors improves consistency and surfaces feasibility issues early. • Where baselines are not yet available, do not leave the target field blank. Set a provisional target drawing on historical data, sectoral benchmarks or expert judgment, and document how it will be revised once the baseline is collected. Document assumptions and risks that could affect data availability or quality. • Avoid assigning data collection responsibilities without confirming institutional capacity and budget. • Avoid creating parallel systems; instead, strengthen existing data collection, reporting and planning processes and systems, and embed indicators within them wherever possible. • Involve sectoral ministries and technical agencies, the national statistics office, finance and planning ministries, local authorities, the UNFCCC focal point, the GCF national designated authority, and development partners supporting national statistics or planning systems.
Resources and examples	• This GIZ and IISD report gives examples of over 70 indicator fact sheets across types and sectors. • This FAO guidance on monitoring and evaluation (M&E) for adaptation in the agriculture sector offers a step-by-step approach to designing national M&E systems in that sector, including practical guidance on establishing baselines and targets. • South Africa's data management system, called *Let's Respond Toolkit*, documented in the NAP Global Network MEL Toolkit (pp. 82–83), illustrates how data collection, management, and analysis can be operationalized within a national adaptation MEL system.

[1] A **standardized metadata format** means that all indicators, regardless of sector, are documented using the same fields, in the same structure and at the same level of detail. This consistency ensures that indicator fact sheets can be aggregated, compared, and reported on at the national level without requiring additional harmonization work later.

3.2 Implementation Steps (5–7)

Step 5	Validate, pilot, and refine with stakeholders
Description	Proposed indicators should be reviewed with the actors who will use them, report against them, or be affected by the policies they measure before they are tested in practice. Validation confirms that indicators are understood, feasible, and meaningful before piloting them across the monitoring cycle in a limited number of sectors or regions. Validating and piloting indicators is crucial for quality assurance, ownership, and feasibility at scale. This step helps refine indicators for rollout, avoiding expensive scaled implementation that can fail at the data collection stage or generate information that is not used.
Activities under this step	1. Prepare a summary of proposed indicators, including their definitions, data sources, collection methods, disaggregation requirements, and draft targets, drawing from Step 4. 2. Facilitate structured validation sessions with the relevant sectoral ministries, the national statistics office, subnational authorities, civil society and community representatives. This can include, but is not limited to, the stakeholders involved in Step 2 consultations. 3. Document feedback and apply agreed refinements to indicator fact sheets and the draft monitoring plan. 4. Select a representative subset of sectors or regions for the pilot, covering diverse data environments and run one full shortened monitoring cycle—data collection, compilation, quality assurance, and reporting. 5. Document challenges encountered at each stage: data availability, definitional ambiguity, and institutional gaps. 6. Review pilot findings with stakeholders and apply targeted refinements to indicator definitions, metadata, and roles. Produce a revised, validated indicator set, updated fact sheets, and a finalized monitoring plan ready for Step 6.
Tips	• Organize validation by sector or thematic area rather than presenting the full indicator set to all stakeholders at once—feedback is more manageable and specific. • Be explicit with participants about how their input will be used and which decisions are still open. • Pay particular attention to whether women, youth, Indigenous Peoples and other marginalized groups are meaningfully represented, and whether indicators adequately capture their experiences. • Where validation reveals that an indicator is not feasible or not meaningful for reporting actors, revise or replace it—do not retain it because it appears technically sound on paper.

Step 5	Validate, pilot, and refine with stakeholders
	• Choose pilot sites that reflect the diversity of national contexts, not just the most data-rich settings, and treat the pilot as a learning exercise with structured reflection time built in before scaling. • Involve the ministry or agency coordinating the NAP process as lead, alongside sectoral and technical ministries, the national statistics office, gender and Indigenous Peoples' focal points, subnational authorities, civil society, the private sector, and development partners.
Resources and examples	• NAP Global Network's Toolkit for Gender-Responsive National Adaptation Plans provides practical guidance for integrating gender equality into NAP processes, including engagement and validation for gender-responsive indicator design and data collection approaches. • Rwanda's experience piloting its MEL system for adaptation in the agriculture sector offers a practical example of how a sectoral pilot can be used to identify indicators, test data collection processes, and build the evidence base before scaling up. • Morocco tested its M&E system for adaptation in three selected pilot regions before refining it. The pilot process spanned three phases of conceptualizing the M&E system and identifying indicators, operationalizing it, and readjusting it with regional representatives.

Step 6	Institutionalize, collect, and manage data
Description	A validated indicator set generates evidence only if the institutional conditions to use it sustainably are in place. This step moves from a finalized indicator framework to a functioning one by embedding indicators into policies and planning cycles, building the capacity of those responsible for data collection, collecting data, and establishing the data management systems and protocols that ensure data flows reliably over time.
Activities under this step	1. Use the tested and finalized indicator list to formally reference the indicators and its monitoring plan in relevant planning documents and strategies, and other MEL systems. 2. Where the legal and regulatory framework allows, seek to embed indicator reporting obligations in national legislation, environmental or climate regulations, or sectoral laws to help secure ownership, budget, and long-term continuity. 3. Develop guidelines, manuals, or other reference materials to standardize how data is collected, recorded, and reported across actors. 4. Hold capacity-strengthening workshops and training sessions with all actors responsible for data collection, quality assurance, and reporting, from the national to subnational levels. Such training sessions can be embedded through government training institutions and other appropriate learning institutions for sustained capacity building. 5. Establish or confirm data-sharing protocols across ministries and agencies, including memorandums of understanding where necessary, and set up centralized data management systems for storing, organizing, and sharing indicator data. 6. Collect data for all indicators using the methods and sources defined in the indicator fact sheets from Step 4, at the frequency specified in the monitoring plan. Where baselines cannot be collected immediately, document the methodology and timeline for their establishment. 7. Compile results into a selected data management system identified in Step 4, either manually via an Excel spreadsheet or using data portals and online repositories. Conduct quality checks and flag data quality issues or gaps for follow-up.
Tips	• Budget explicitly for data collection, quality assurance, analysis, and data management, including for ongoing maintenance rather than one-off setup costs. • Align indicator reporting schedules with existing government planning and budget cycles to reduce burden and increase uptake. • Formalize data-sharing arrangements early; bottlenecks at the reporting stage almost always trace back to unresolved institutional arrangements. • Disaggregate data collection and management from the outset. Retrofitting disaggregation later is significantly more costly.

Step 6	Institutionalize, collect, and manage data
	• Build quality assurance checks into the collection process rather than treating them as a separate stage. • Involve the ministry or agency coordinating the NAP process, planning and finance ministries, sectoral and GESI focal points, subnational authorities, the national statistics office, and development partners supporting national statistics or planning systems.
Resources and examples	• Governments can leverage the NAP Global Network's free, self-paced online course on MEL for NAP Processes to equip their teams and practitioners with methodologies and tools for implementing effective MEL systems, with over 30 country examples. • Viet Nam's Law on Environmental Protection (2020) embeds climate change monitoring and reporting obligations in national legislation, its NAP process, and its 2022 Monitoring and Evaluation Manual for Climate Change Adaptation supported the institutionalization of their MEL system. • Liberia's experience illustrates how targeted training on a national MEL framework can operationalize MEL across sector ministries and advance its integration into NAP processes.

Step 7	Use indicator data to inform the MEL system and decisions
Description	Data generates value only when it is used. This step covers the activities that translate indicator data into usable knowledge: analyzing results, drawing on evaluations, communicating findings to different audiences and facilitating learning that feeds back into adaptation decision making. Indicators tell you whether change is occurring. Understanding why, for whom, and what to do differently requires combining that data from indicators with qualitative evidence, evaluations, and structured reflection.
Activities under this step	1. Analyze compiled indicator data against baselines and targets, disaggregated by gender, geography, and other relevant cross-cutting, and check findings against the expected results identified in your ToC and Step 1. 2. Use indicator data to coordinate inputs across national and international reporting obligations to reduce burden—including progress reports to national decision-makers, Biennial Transparency Reports, Adaptation Communications, and nationally determined contribution progress reports. 3. Draw on indicator analysis to scope and commission periodic evaluations, using indicator trends to frame key evaluation questions and identify where deeper investigation of outcomes and impacts is needed. 4. Draw on the indicator analysis to conduct periodic evaluations, using indicator trends to identify where deeper investigation of outcomes and impacts is needed and explain how, why, and for whom changes have occurred. 5. Use indicator results as the evidence base for structured learning moments—reflection forums, interministerial reviews, and peer exchanges—where findings are discussed collectively, and implications for adaptation action are drawn out. 6. Document key findings, lessons, and recommendations to feed into the iterative review step.
Common milestones/ outputs	• Analyzed, disaggregated indicator data set. • Evaluation questions scoped and informed by indicator trends. • Inputs for national and international reporting obligations and evaluations.
Tips	• Involve the national MEL focal point or NAP coordination unit, sectoral ministries for analysis and validation of findings, civil society and community representatives for learning forums, the UNFCCC focal point, and independent evaluators where strategic evaluations are conducted. • Do not wait for complete data before reporting: flag gaps transparently rather than delaying. • Use simple visual tools, such as traffic light ratings or progress dashboards, to make results accessible to non-technical audiences.

Step 7	Use indicator data to inform the MEL system and decisions
	• Treat unexpected or negative trends in indicator data as valuable evidence and lessons, not problems to manage. This information is often the most important for adaptive management. • Ensure learning forums include representatives of marginalized groups.
Resources and examples	• Kenya's National Climate Change Action Plan (NCCAP) progress report (2021) illustrates a multistakeholder approach to communicating results across seven priority sectors, combining narrative reporting with structured indicator tracking. • The UNFCCC BTR and adaptation communication guidance sets out the transparency framework requirements under which countries can report on adaptation, providing the international reporting context for which national MEL systems can generate evidence.

3.3 Learning Step (8)

Step 8	Validate, pilot, and refine with stakeholders
Description	An indicator system that is not reviewed becomes obsolete. This step applies MEL logic to the MEL system itself—sometimes called the "MEL of MEL" (see Box 4). It is a standing, recurring process, not a one-off exercise. Review findings feed back into Steps 1 through 4, enabling continuous improvement as priorities shift, data systems improve, and lessons accumulate.
Activities under this step	1. Schedule review cycles aligned with NAP process reviews, for example, a light annual review and in-depth reviews at the end of each NAP process or decision-making cycle. 2. Compile feedback, recommendations, and quality assurance information from previous steps to surface gaps and quality concerns. 3. For light reviews, work through a structured checklist with involved actors and data custodians to assess data collection, reporting consistency and proportionality of reporting requirements. 4. For in-depth reviews, broaden the assessment to cover whether MEL activities are resulting in learning and changes to NAP processes. 5. Gather structured feedback from data producers, users, decision-makers, and affected communities through surveys, interviews, or review workshops. 6. Review and update criteria from Step 1 and apply agreed criteria to retain, revise, or replace indicators, documenting the rationale for each decision. 7. Where reviews reveal systemic issues such as persistent data gaps, indicators never used, or institutional arrangements not functioning, escalate findings back to Steps 1, 2, or 4 as appropriate. 8. Document review findings, decisions, and outstanding issues. Communicate lessons to all relevant stakeholders and update the indicator fact sheets and monitoring plan accordingly.
Common milestones/ outputs	• Light and in-depth review checklist and protocols completed. • Review reports with documented rationale for all changes. • Updated indicator fact sheets and monitoring plan reflecting decisions to retain, revise, or replace.
Tips	• Build review cycles into the MEL system from the outset. • Light-touch reviews with a structured checklist can be done efficiently annually. • Remove or revise indicators that are never reported against or whose data is never used—retaining them for appearances reduces the credibility of the whole system.

Step 8	Validate, pilot, and refine with stakeholders
	• Countries can report on MEL system progress in BTRs and Adaptation Communications under the UAE FGCR target 10(d), and BAI 10(d)(i)–10(d)(v). • Involve the national MEL focal point or NAP coordination unit, sectoral ministries and relevant actors, and a multistakeholder MEL oversight body or steering committee.
Resources and examples	• Integrating Learning into the National Adaptation Plan Process (Dekens & Harvey, 2024) explores how deliberate learning can be embedded across NAP process phases, with frameworks for structured reflection and evidence use. • IISD's National Monitoring, Evaluation, and Learning Systems for Climate Change Adaptation analyzes national MEL systems across nine countries, examining legal frameworks, systematic approaches, and GESI integration.

Box 4. Doing the MEL of MEL: Indicators to track and assess the MEL system

An effective MEL system should itself be subject to monitoring, assessment, and review to remain valid. Under the UAE FGCR, Target 10(d) calls on all countries to have designed, established, and operationalized a MEL system for national adaptation efforts by 2030. The five BAIs for Target 10(d)—covering design, operationalization, publication of findings, integration of findings into adaptation efforts, and institutional capacity—provide a reference for countries aiming to assess and report on their progress on MEL for adaptation at the national level (see BAI in Appendix A). At the national level, countries can think around three core questions to assess their MEL systems (Beauchamp et al., 2024):

Is the system operational?

- existence of a documented MEL system with clear objectives, scope, and institutional mandates
- number of indicators for which data has been collected at the agreed frequency in the reporting period
- proportion of indicators with a completed baseline value
- existence and regularity of meetings of a multistakeholder MEL oversight body
- budget allocated to MEL activities as a proportion of total NAP implementation budget

Is the system inclusive?

- proportion of MEL oversight body members who are women or representatives of marginalized groups
- number of sectors or subnational levels actively contributing data to the MEL system
- proportion of indicators disaggregated by gender, age, or other relevant social dimensions
- evidence that feedback from affected communities has been documented and considered in MEL processes

Is the system generating learning?

- number of structured learning moments facilitated in the reporting period (reflection forums, peer exchanges, interministerial reviews)
- evidence that MEL findings have been formally presented to decision-makers
- number of documented instances where MEL findings informed changes to NAP processes, strategies, or resource allocation
- existence of recognized mechanisms for capturing and disseminating learning from MEL

4
Conclusion

Well-designed adaptation indicators can help national governments understand whether their adaptation efforts are reducing climate risks, reaching the right people, and generating the evidence needed to improve results. When embedded in a functioning MEL system—grounded in a ToC, supported by clear institutional arrangements, and connected to national planning cycles—they are a powerful tool for adaptive management.

The steps in this brief are designed to be practical and flexible. Countries can start with what they have, build on existing data systems and institutional mandates, and expand progressively as capacity grows. There is no single correct set of indicators, and no single correct approach to selecting them. What matters is that the process starts from national priorities and adaptation objectives, and that it involves the actors who will use and be affected by the results.

The global policy context is evolving rapidly. Discussions under the GGA, the second round of BTRs and the second global stocktake all create new incentives and entry points for countries to strengthen national MEL systems and indicators for adaptation. Countries can build on this momentum to develop indicator and MEL systems that are nationally driven, grounded in adaptation priorities, and designed first and foremost to generate the evidence needed to inform decisions and advance adaptation action.

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Appendix A. The 59 Belém Adaptation Indicators

Source: Decision 12/CMA.7, Annex. Adopted at COP30/CMA.7, Belém, November 2025. The 59 indicators below are voluntary, non-prescriptive, and non-punitive (para. 7). They shall not create new obligations, establish standardized methodologies, or serve as a basis for comparison among countries (paras. 7 and 9). The indicators were based on a first official list of 100 potential indicators prepared by a group of selected experts under the UAE–Belém work programme ahead of COP 30.

The COP 30 decision adopting the Belém Adaptation Indicators emphasizes the importance of capturing adaptation progress in a comprehensive manner requires contextual information, which may be reflected through the disaggregation of indicators.

Indicator	Indicator description
Target 9(a): Water — Significantly reducing climate-induced water scarcity and enhancing climate resilience to water-related hazards	
9(a)(i)	Level of water stress, including as an outcome of adaptation actions where applicable, accounting for relevant climate hazard intensity and/or frequency
9(a)(ii)	Level of water use efficiency, including as an outcome of adaptation actions where applicable
9(a)(iii)	Proportion of critical water and sanitation infrastructure systems that are resilient to climate-related hazards under different warming scenarios, including as an outcome of adaptation actions where applicable
9(a)(iv)	Proportion of the total area of basins and cryosphere for which a climate adaptation plan has been developed and implemented on the basis of different warming scenarios, where applicable
9(a)(v)	Proportion of the population using safe and affordable potable water services that are climate-resilient, including as an outcome of adaptation actions where applicable
9(a)(vi)	Proportion of the population using sanitation services that are safely managed and climate-resilient, including as an outcome of adaptation actions where applicable
9(a)(vii)	Extent of measures taken to improve and extend water, sanitation and hygiene services to populations disproportionately affected by climate change and to vulnerable groups relative to needs

Indicator	Indicator description
9(a)(viii)	Proportion of bodies of water with good ambient water quality for drinking water supply, including as an outcome of adaptation actions where applicable
9(a)(ix)	Number of people per 100,000 supported in planned relocation processes in response to water-related hazards, where adaptation measures were taken to ensure safety of populations
Target 9(b): Food and agriculture — Attaining climate-resilient food and agricultural production and equitable access to adequate food and nutrition for all	
9(b)(i)	Proportion of area under management for food and agricultural production utilising practices and technologies relevant to climate change adaptation
9(b)(ii)	Extent of implementation of institutional frameworks for knowledge transfer, research and development, and extension services supporting climate change adaptation in the areas of food and agriculture relative to needs
9(b)(iii)	Level of degraded areas that are under management for food and agricultural production, including as an outcome of adaptation actions where applicable
9(b)(iv)	Level of food and agricultural yield in areas that are under management for food and agricultural production, including as an outcome of adaptation actions where applicable
9(b)(v)	Proportion of the population with equitable access to adequate food and nutrition, including as an outcome of adaptation actions where applicable
Target 9(c): Health — Attaining resilience against climate change related health impacts and significantly reducing climate-related morbidity and mortality	
9(c)(i)	Rate of mortality associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions or coverage of early warning systems where applicable
9(c)(ii)	Level of incidence of climate-sensitive infectious diseases, including as an outcome of adaptation actions where applicable
9(c)(iii)	Rate of morbidity associated with climate impacts compared with counterfactual rates, including as an outcome of adaptation actions where applicable
9(c)(iv)	Proportion of the population vulnerable to climate change with access to mental health and psychosocial support

Indicator	Indicator description
9(c)(v)	Extent to which climate health services have remained at full capacity during and following climate-related events relative to pre-event service capacity
9(c)(vi)	Percentage of health facilities that are resilient to climate-related hazards under different warming scenarios, including as an outcome of adaptation actions where applicable
9(c)(vii)	Coverage of essential health services that are supported by adaptation measures to ensure continuity during and following climate-related events
9(c)(viii)	Proportion of health practitioners who have received capacity-building support pertaining to climate change adaptation and health
Target 9(d): Ecosystems and biodiversity — Reducing climate impacts on ecosystems and accelerating the use of ecosystem-based adaptation and nature-based solutions	
9(d)(i)	Proportion of climate-resilient ecosystems that are providing services to populations that depend on them
9(d)(ii)	Proportion of ecosystem areas with adaptation actions implemented towards enhanced resilience and services
9(d)(iii)	Level of resilience of ecosystems, including as an outcome of adaptation actions where applicable
9(d)(iv)	Level of threat status of ecosystems, including as an outcome of adaptation actions where applicable
9(d)(v)	Level of threat status of species, including as an outcome of adaptation actions where applicable
9(d)(vi)	Level of adaptive capacity, resilience and vulnerability to climate impacts resulting from the implementation of ecosystem-based adaptation actions and nature-based solutions according to information reported by Parties, as appropriate
Target 9(e): Infrastructure and human settlements — Increasing the resilience of infrastructure and human settlements to climate change impacts	
9(e)(i)	Proportion of settlement upgrading programmes implemented that include climate change adaptation measures and maintain sustained engagement at the local level

Indicator	Indicator description
9(e)(ii)	Proportion of infrastructure and human settlements vulnerable to climate-related hazards and other extreme events relocated to a safer location
Target 9(f): Poverty and livelihoods — Substantially reducing the adverse effects of climate change on poverty eradication and livelihoods	
9(f)(i)	Level of population living in poverty, including as an outcome of adaptation actions where applicable
9(f)(ii)	Proportion of the population in climate-vulnerable areas with access to social protection services
9(f)(iii)	Level of social protection systems that consider climate risk management aspects and can respond to climate change impacts
Target 9(g): Cultural heritage — Protecting cultural heritage from the impacts of climate-related risks	
9(g)(i)	Percentage of at-risk cultural and natural heritage sites and elements with adaptation measures implemented to enhance resilience to climate-related hazards, guided by traditional, local or Indigenous Peoples' knowledge and practices
9(g)(ii)	Proportion of cultural heritage protected from climate impacts through digitisation measures for preservation and recovery and by storing movable heritage in climate-resilient facilities
9(g)(iii)	Percentage of cultural heritage and sites with adaptation measures and emergency preparedness plans in place for climate change related hazards under different warming scenarios
9(g)(iv)	Level of establishment of institutional arrangements for the provision of regular training on climate change adaptation that incorporates guidance from traditional, local and Indigenous Peoples' knowledge where applicable
9(g)(v)	Percentage of climate adaptation measures focused on cultural heritage that maintain sustained engagement with Indigenous Peoples and/or local communities
Target 10(a): Impact, vulnerability and risk assessment — By 2030, all Parties have conducted up-to-date climate risk assessments; by 2027, all Parties have established multi-hazard early warning systems	
10(a)(i)	Level of establishment of multi-hazard early warning systems

Indicator	Indicator description
10(a)(ii)	Level of conduct of assessments of climate hazards, climate change impacts, and exposure to risks and vulnerabilities based on different global warming scenarios
10(a)(iii)	Level of establishment of multi-hazard monitoring and impact-based forecasting systems, including monitoring stations
10(a)(iv)	Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms
10(a)(v)	Percentage of the population in a country exposed to or at risk from climate-related disasters protected through pre-emptive evacuation measures following early warning
10(a)(vi)	Level of establishment of climate information services for risk reduction and systematic observation to support improved climate-related data, information and services
10(a)(vii)	Extent of usage of climate risk information and comprehensive risk assessment to inform formulation of national adaptation plans, policy instruments, and planning processes and/or strategies
Target 10(b): Planning — By 2030, all Parties have in place country-driven, gender-responsive, participatory and fully transparent national adaptation plans and strategies	
10(b)(i)	Status of having national adaptation plans, policy instruments, and planning processes and/or strategies in place
10(b)(ii)	Status of having gender-responsive adaptation plans, policy instruments, and planning processes and/or strategies in place
10(b)(iii)	Existence of national adaptation plans, policy instruments, planning processes and strategies that have been informed by traditional knowledge, knowledge of Indigenous Peoples and local knowledge systems
Target 10(c): Implementation — By 2030, all Parties have progressed in implementing their national adaptation plans, policies and strategies	
10(c)(i)	Extent of implementation of national adaptation plans, policies and strategies relative to planned implementation thereof
10(c)(ii)	Number of deaths and missing persons associated with climate-related hazards, per 100,000 people, including as an outcome of adaptation actions where applicable

Indicator	Indicator description
10(c)(iii)	Net savings as a percentage of gross domestic product from avoided losses, including as an outcome of adaptation actions where applicable
10(c)(iv)	Amount of finance for climate adaptation reported in line with the transparency framework (decision 18/CMA.1), including international public finance provided by developed countries and received by developing countries
10(c)(v)	Technology development and transfer for climate adaptation reported in line with the transparency framework (decision 18/CMA.1), including support provided by developed countries and received by developing countries
10(c)(vi)	Capacity-building for climate adaptation reported in line with the transparency framework (decision 18/CMA.1), including support provided by developed countries and received by developing countries
Target 10(d): Monitoring, evaluation and learning — By 2030, all Parties have designed, established and operationalised a MEL system for their national adaptation efforts	
10(d)(i)	Extent of design of a system for monitoring, evaluation and learning for national adaptation efforts relative to needs
10(d)(ii)	Level of operationalisation of a system for monitoring, evaluation and learning for national adaptation efforts
10(d)(iii)	Level of periodic publication of monitoring, evaluation and learning findings regarding the implementation of national adaptation efforts
10(d)(iv)	Level of integration of monitoring, evaluation and learning system findings into national adaptation efforts
10(d)(v)	Level of institutional capacity to fully operate systems for monitoring, evaluation and learning for national adaptation efforts

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