

# GOOD PRACTICE STUDY

on Principles for Indicator Development,  
Selection, and Use in Climate Change  
Adaptation Monitoring and Evaluation





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## Abbreviations

AMAT	Adaptation Monitoring and Assessment Tool
CBA	community-based adaptation
CCA	climate change adaptation
CIF	Climate Investment Funds
CoBRA	Community-Based resilience assessment
CRiSTAL	Community-based Risk Screening Tool—Adaptation and Livelihoods
DFID	Department for International Development
GEF	Global Environment Facility
GIZ	German Federal Enterprise for International Cooperation
IISD	International Institute for Sustainable Development
LDCF	Least Developed Countries Fund
M&E	monitoring and evaluation
ND-GAIN	Notre Dame Global Adaptation Index
PMERL	Participatory Monitoring, Evaluation, Reflection, and Learning
PPCR	Pilot Program for Climate Resilience
PROVIA	Global Programme of Research on Vulnerability, Impacts and Adaptation
SCCF	Special Climate Change Fund
Sida	Swedish International Development Cooperation Agency
SMART	Specific, measurable/meaningful, assignable/attainable, realistic and time-related
TAMD	Tracking Adaptation and Measuring Development
UKCIP	U.K. Climate Impacts Programme
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	U.S. Agency for International Development



PART I

# Introduction





## CHAPTER 1

# Study Introduction and Purpose

## 1.1 BACKGROUND

Current and future climatic changes will affect communities, countries, and ecosystems in a variety of ways. Climate change can increase the risk of drought and fire, change rainfall patterns, have an impact on agricultural crop yields, affect ecosystems and biodiversity, compromise human health, and ultimately undermine livelihoods and economies. Such impacts are not limited to a specific region or sector. The effects of climate change will be felt across the globe, but unevenly. Current climate projections suggest that subtropical, semi-arid, and coastal areas will be especially affected (IPCC 2007, 2012, and 2014). Meanwhile, those who are already poor, vulnerable, or marginalized will be hardest hit because they have the fewest resources with which to cope and adapt.

The international community has been shaping its future commitments to an effective international climate change response through the annual United Nations climate change conferences held in the context of the United Nations Framework Convention on Climate Change (UNFCCC). The call for the integration of climate change interventions into wider development strategies grew louder with the agreement at the United Nations Conference on Sustainable Development (Rio+20) in 2012 to develop the Sustainable Development Goals. Their development, together with the concomitant process of establishing the post-2015 development agenda to set global devel-

opment targets in the wake of the Millennium Development Goals, intensifies the demand for robust and effective monitoring and evaluation (M&E) frameworks that measure outcomes in relation to these commitments. Climate change commitments fall into two fundamental response strategies: climate change adaptation (CCA) and climate change mitigation.

CCA focuses on anticipating the risks and adverse impacts of a changing climate, taking appropriate action to prevent or minimize the damage, and seizing on potential opportunities that may arise. Creating adaptation pathways may include fashioning programs, projects, and policies that try to minimize the impacts of climate change. Interventions can take the form of activities in livelihood security, disaster risk reduction, and national policy development to promote resilience and capacities to respond to, cope with, and prepare communities for climate variability. But how do we know when successful adaptation has been achieved? How can we monitor whether interventions are on track and delivering results? What does successful adaptation look like? How can we extract lessons from past and current activities to help shape the future direction of adaptation interventions? These are the critical questions that inform the role of M&E in CCA.

M&E in CCA interventions is a critical component of adaptive learning for programs and policies. However, practitioners encounter many conceptual and operational M&E challenges when



assessing adaptation interventions. These challenges include

- the long time scales associated with climate change,
- a lack of agreed-upon definitions,
- moving and dynamic baselines,
- the complex multisectoral/multi-thematic nature of adaptation, and
- the context specificity of locally measured indicators versus the need for data aggregation for portfolio-level assessments and comparative analyses.

Thus, program planners and policy makers must create M&E frameworks that can address the thorny bundle of methodological challenges that characterize CCA.

A critical challenge within an adaptation M&E system is the development, selection, and use of indicators. It is through indicators that results are tracked, monitored, and evaluated. Indicators are used, essentially, as the signpost of any adaptation intervention, providing clues and direction on how change is occurring and if outcomes are being achieved.

## 1.2 THE GOOD PRACTICE STUDY

While there is an abundance of literature on M&E for CCA, there is less specific guidance on developing, selecting, and using adaptation indicators. What are the characteristics of a good adaptation indicator? What lessons can be drawn from the use of indicators in CCA programming? How can these lessons be extracted into good practice principles? These are critical questions that are addressed in this study to help guide the future development of indicators used in the M&E of adaptation interventions.

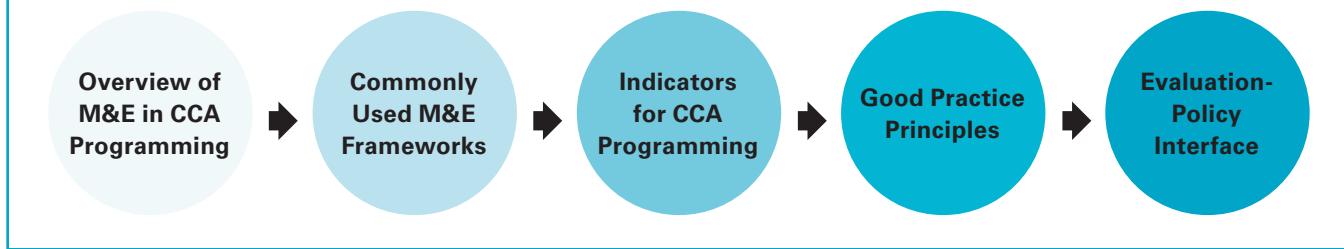
### About the Study

This study identifies and addresses key challenges concerning M&E for CCA. It does so by documenting good practices and good practice principles on the development, selection, and use of indicators used in the M&E of adaptation interventions. The study also looks at the steps and contexts M&E personnel should consider when formulating, selecting, adjusting, and/or using indicators. In addition, the study identifies common themes in the literature and gaps in data—including the role of learning in an adaptation M&E system and the identification of linkages (or lack thereof) between indicators and policy formulation and decisions.

The study first looks at M&E for CCA in a broader context to see what the key challenges are (chapter 2), and how M&E is being applied in the adaptation field (chapter 3). It reviews the types of adaptation indicators that are commonly used (chapter 4), and then moves into a narrower discussion of what practitioners need to consider when developing better, more useful indicators. It next documents good practice principles that help define indicators for adaptation interventions (chapter 5). Finally, it looks at how the evaluation-policy interface can support better adaptation policies, and if good practice principles can inform greater uptake of evaluation results as evidence in policy making (chapter 6) (figure 1.1).

The summaries at the end of each chapter provide at-a-glance overviews. These overviews are an excellent first point of reference for progressive day-to-day M&E practices (particularly those on good practice principles and the uptake of evaluative evidence in policy making). The chapter summaries, in combination with the conclusions in chapter 7, are vital in establishing next steps for M&E professionals to advance adaptation indicators and evidence-informed policy development in their daily work.

**FIGURE 1.1 Structure of the Good Practice Study**



This study is intended for a wide audience of M&E professionals, development and CCA practitioners, and academics. The findings and good practice principles on the development, selection, and use of indicators also have applications extending well beyond the CCA field.

## Methodology

This study was conducted as a desk review, and adopted a participatory approach by integrating inputs and feedback from Climate-Eval members through blog posts and online discussions. A literature review was conducted using a “stepped, iterative literature and feedback approach” (Cooper 1998). Specifically, the point of departure was a broad review of all relevant literature and works concerning adaptation, after which successive iterative steps of refinement further focused and deepened the study. Feedback from adaptation experts was incorporated into both the draft and final

study reports. This final report also integrates discussions and feedback received at the 2nd International Conference on Evaluating Climate Change and Development held in November 2014.

## The Climate-Eval Community of Practice

The Global Environment Facility (GEF) Independent Evaluation Office hosts Climate-Eval, a community of practice whose domain of work is to improve the M&E of climate change and development interventions through knowledge sharing and capacity building. Members of Climate-Eval are M&E practitioners who focus on climate change and related development fields, coming from different sectors and thematic areas, and different institutions and countries. One of the goals of Climate-Eval is to identify and initiate new developments in climate change M&E standards, frameworks, and practices. This study supports ongoing learning and knowledge sharing in [Climate-Eval](#).





## CHAPTER 2

# The Current Discourse

The goal for an M&E system for adaptation is to identify the aspects that are working, those that are not working, and the reasons why, as well as providing mechanisms and feedback to adjust the adaptation process accordingly (Valencia 2009, 269).

CCA M&E has not developed in a vacuum, but builds on lessons in development programming—in particular, in the fields of agriculture, livelihoods, and disaster risk management. While not a new field, good practice in adaptation M&E is only emerging now, particularly in the subfields of climate resilience and vulnerability (Bours, McGinn, and Pringle 2014b). These good practices should be disseminated as M&E plays a critical role, not only as a management and accountability tool, but also as an instrument to advance learning in a rapidly evolving field (Spearman and McGray 2011). Table 2.1 provides some examples

of how M&E can influence CCA stakeholders.

This chapter introduces and explores key CCA M&E challenges. It reviews some of the challenges for M&E in CCA programming, current focal areas of CCA M&E, and how evaluation use creates a foundation for M&E in adaptation.

## 2.1 CHALLENGES FOR M&E IN CCA INTERVENTIONS

The difficulties of M&E in CCA are widely recognized by adaptation practitioners and the evaluation community. Individually, none of these challenges are unique to CCA, but together they represent a characteristic suite of methodological challenges. As the adaptation field continues to evolve, strategies to confront and tackle these dilemmas continue to frame the dis-

TABLE 2.1 Influence M&E Can Have on Adaptation

Example	Users
An evaluation of a disaster preparedness program in a province provides recommendations to regional government on how to improve its preparedness policies or where to allocate preparedness funds	<ul style="list-style-type: none"><li>● Decision/policy makers</li><li>● National government</li><li>● Local government</li></ul>
Providing an evidence base for a new administration to continue similar adaptation programs that were administered by the previous administration, or an evidence base to adjust those programs	<ul style="list-style-type: none"><li>● Decision/policy makers</li><li>● National government</li><li>● Local government</li></ul>
Presenting performance data on programs and portfolios to donors/general public (i.e., showing accountability)	<ul style="list-style-type: none"><li>● Development agencies</li><li>● International adaptation funds</li></ul>
Documenting the economic and social benefits of community-based adaptation programs in villages; alerting technical agencies to the need to incorporate vulnerable groups	<ul style="list-style-type: none"><li>● Community-based organizations</li><li>● Local communities</li></ul>

SOURCE: Adapted from World Bank Independent Evaluation Group 2009.



course on how to develop effective M&E practices and frameworks (Spearman and McGray 2011).

This section briefly discusses some of these challenges. Note that there are a range of responses for each challenge, and that these responses should be reviewed in the context of the individual project or program (Pringle 2011). The main challenges discussed in the growing literature of climate adaptation M&E include the following:

- ***Attribution and complexity of determinants.*** It may be difficult to confidently attribute desired change to a specific CCA intervention. CCA is inherently long term and multifaceted, with a complex range of influences beyond a single intervention. How then can we clearly establish the impact of the project or program? Practitioners struggle with this question of attribution, especially when impacts become more difficult to attribute further up the results chain (CIF 2012; Wilby and Dessai 2010).

An illustration helps demonstrate the difficulty of determining attribution. An adaptation project to reduce the impact of droughts in East Africa might use prevalence of bushfires as an indicator. However, climatic changes (i.e., aridity) are unlikely to be the only factor at hand. Population growth pressures, slash-and-burn agricultural practices, and worsening natural resource management might be equally or more important (INGC 2009). The challenge for M&E practitioners is to understand the broad causal links within and between socioeconomic and climatic systems in order to best attribute results to adaptation interventions (Olivier, Leiter, and Linke 2013).

The difficulty of establishing clear attribution for changes is characteristic of

policies and programs that address complex social issues. There is growing consensus that good practice in M&E is to focus less on attribution and more on how an intervention *contributes* to an intended outcome.

- ***Accounting for maladaptation.*** Adaptation interventions can sometimes be unsuccessful, either because they do not achieve their intended aims or because of unintended negative side effects. There are instances of adaptation interventions that result in negative outcomes for either populations or the environment. This is called *maladaptation*. Barnett and O'Neill (2010) outline five manifestations of maladaptation, when programs either (1) increase emissions of greenhouse gases, (2) disproportionately burden the most vulnerable, (3) have high opportunity costs, (4) reduce incentives and capacity to adapt, and/or (5) set paths that limit future choices (i.e., increase vulnerabilities).

In other studies, experts see maladaptation as including the failure to account for the myriad systems and feedbacks between sectors and groups that in turn can lead to poor decisions on adaptive responses (Pittock 2011; Satterthwaite et al. 2009; Scheraga et al. 2003). For example, an agricultural policy that provides subsidies to farmers to purchase high-yielding seeds might produce economic gains in the short term; however, in the long term, the vulnerability of monocrops to extreme climates might actually decrease a farmer's adaptive capacity (World Bank 2010b). Maladaptation may also include failures to address critical gaps or drivers of climate vulnerability—for example, focusing on narrow one-off projects (such as introducing "green" cook stoves or climate-resilient rice varieties) without addressing poor natural resource management.



Also, M&E frameworks should be designed to accommodate more than simple tracking of program targets. Levina (2007) presents an example that did just that:

...using "% of population living in a floodplain" as an indicator of effective adaptation success (where a low percentage would be considered a move towards successful adaptation) may lead governments to adopt policies of resettlement and relocation which (when implemented incorrectly) may not actually benefit the households concerned nor lead to real adaptation. Following the 2000 floods in Mozambique many households were relocated away from the floodplains in which they lived. However, many of these households were not provided with new homes, sufficient farmland or adequate alternatives to their original livelihood strategies and have, thus, returned back to the floodplains. (Levina 2007, 39)

Evaluators are faced with the challenge of identifying actual or potential maladaptation. Because maladaptive effects are almost always unintended, they may not be captured by predetermined indicators. Nevertheless, adaptation planners and evaluators should be aware of this potential. "Big picture" thinking and approaches to evaluation research are key in this regard. Maladaptation and other unexpected findings often first manifest in more open-ended, qualitative data and/or measures of broader sustainable development conditions. Evaluators should be aware of this and should be prepared to pursue inquiry beyond narrow programming targets.

- **Counterfactuals.** A counterfactual is in essence "a comparison between what actually happened and what would have happened in the absence of the intervention" (White 2006, 3). A successful

adaptation intervention can also be determined by the absence or amelioration of a negative event. However, establishing adaptation success often requires comparison against hypothetical scenarios, and a robust counterfactual scenario may be difficult to formulate.

Counterfactual analysis is commonly used in evaluating disaster risk reduction interventions, where evaluations often take place in the absence of the actual disaster. The success of a project that provided hurricane shelters is not evaluated by waiting for a hurricane to hit; rather, counterfactual scenarios are developed. Several types of counterfactual scenarios can be used by evaluators, ranging from experimental and quasi-experimental designs to qualitative evaluations (Brooks, Aure, and Whiteside 2014).

New thinking in adaptation M&E emphasizes a focus on qualitative evaluations that capture local knowledge about likely impacts of shocks and stresses for establishing counterfactual scenarios (Brooks, Aure, and Whiteside 2014). Other approaches point toward assessing whether capacities needed to resist and respond to climate impacts have been put in place, with an evaluative focus on the development of such capacities in the absence of shocks and stresses (Frankenberger et al. 2013a). Pringle (2011) suggests that if a clear counterfactual cannot be established, an intervention can instead be seen as one of many adaptation pathways, whereby the evaluator will test the relative success of the chosen pathway. At the macro level, the development of dynamic baseline paths, climate change impact simulation, and (economic) risk modeling have been used as alternatives to traditional counterfactual analysis (Farquharson et al. 2013; Robinson, Willenbockel, and Strzepek 2012; Smith et al. 2015).



The M&E challenge is to know when a counterfactual scenario should be developed, what type of scenario would be appropriate, and how best to apply it in evaluating against the complexity and uncertainty of adaptation processes.

- ***Shifting baselines.*** Shifting baselines are a challenge for evaluators since adaptation and development take place against changing hazard profiles. In a more straightforward intervention, data might be collected before and after implementation, and the change attributed to the impact of the program. This approach assumes a certain stability about the underlying conditions that constitute the baseline. In CCA, where the underlying conditions are themselves changing in uncertain and emergent ways, the validity of comparisons to the pre-intervention baseline is compromised. Indeed, holding steady rather than improving local conditions may constitute success if the local conditions themselves are deteriorating.
- ***Variable time horizons.*** The results of climate change interventions have to be measured against the backdrop of long-term climate change conditions, which means that (1) the final impact of interventions will become clear over a longer period of time, and usually beyond the intervention's scope; and (2) that there can be time lags in between activities and measurable results (Adger et al. 2004; Bours, McGinn, and Pringle 2014a; Villanueva 2011). Because the results of adaptation interventions can manifest across short and long time horizons, M&E systems have to consider tracking success across a time continuum, or measuring impact long after the completion of a project.<sup>1</sup> This is a new area of think-

ing in climate adaptation. Monitoring systems that can function across long time horizons are just now being implemented.

Climate variation is not the only long-term factor at hand. Changes in adaptive capacity, vulnerability, and socio-economic states have to be considered as they are dynamic variables that change over time. This concept is particularly important for programs and projects that target long-term transformations such as building resilience and capacities. As Adger et al. (2004, 45) comment: "indicators of adaptive capacity will represent factors that do not determine current vulnerability but that enable a society to pursue adaptation options in the future." Because of this, evaluations need to capture both a short- and long-term snapshot of vulnerability and the various capacities needed to adapt to climate change—first after the intervention, and then with continuous long-term M&E (Eriksen and Kelly 2007).

- ***Adaptation as a moving target.*** M&E experts set project targets for interventions to help guide activities and outputs. However, adaptation to climate change is in essence a moving target since exposure to climate-related hazards varies and can change throughout the course of the project. The target at the beginning of the project might not be the same as the target at the end of the project.
- ***Uncertainty.*** M&E systems need to be created to address the dynamism and uncertainty inherent to climate change. Uncertainty percolates into cli-

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<sup>1</sup> Although impact evaluations are common in academia/think-tanks and are conceptually



mate change programming as managers and evaluators are asked to formulate strategies in a shifting landscape (Bours, McGinn, and Pringle 2014a; Spearman and McGraw 2011; Villanueva 2011). This idea is illustrated by a cascade of uncertainty (figure 2.1). The range of uncertainty expands at each successive level of the triangle, from those related to greenhouse gas emission projections to climatic models and into types of adaptation responses.

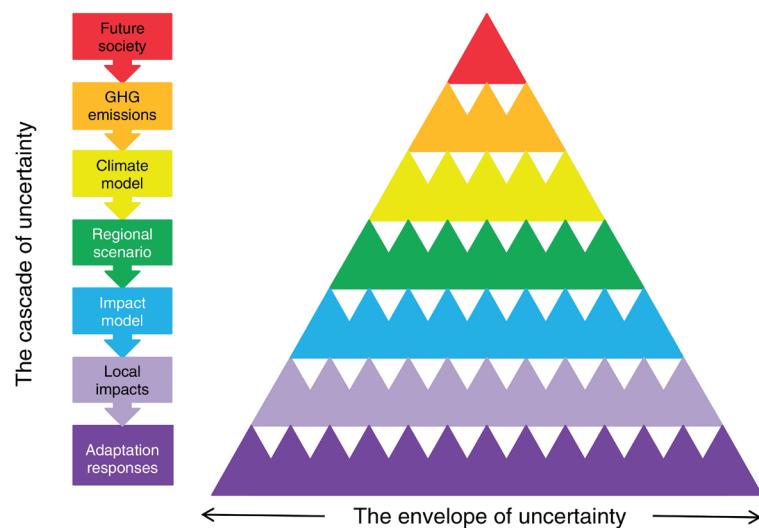
- *Lack of a conceptual agreement on definitions, including what constitutes successful adaptation.* There is no uniform definition for adaptation, and—more importantly—for what successful adaptation should look like.<sup>2</sup> A key debate in this regard is whether successful adaptation is an outcome, a process, or both (Villanueva 2011). Lack of consensus also characterizes adaptation terminology (in this regard, see [annex A](#)). These ambiguities create an uneven knowledge base from which practitioners operate.

## 2.2 CCA M&E FOCAL AREAS

Whether adaptation interventions are aimed at the local, national, or global level, the architecture of their M&E systems ultimately depends on the information needs of the implementing entities and the foreseen evaluation utilization. There are three M&E focal areas in CCA programming: M&E centered on community-based adaptation (CBA); M&E focused on portfolio interventions; and M&E focused

<sup>2</sup> Successful adaptation should be defined on a case-by-case basis by the intervention stakeholders and beneficiaries. The text here refers to the lack of a global consensus on what adaptation success in general is. Another tension shaping this challenge is whether adaptation success can be defined at the global level, or whether it will always be rooted in the local context.

FIGURE 2.1 **Cascade of Uncertainty**



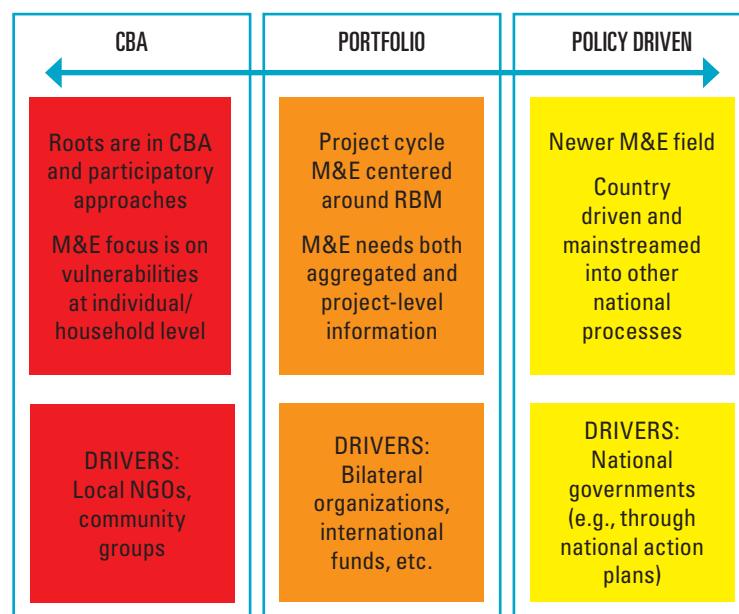
SOURCE: Wilby and Dessai 2010.

NOTE: GHG = greenhouse gas.

on local, national, or regional policy (figure 2.2). Evaluation methods and indicators can be used in more than one of these focal areas.

*CBA M&E* involves participatory M&E approaches, encouraging the principle of local ownership, community participation, and adaptation on a community level. CBA is based on an understanding that communities are best able to define their own vulnerabilities and adaptation needs, and how these will change over time within a changing climate. M&E tools and frameworks in this focal area concentrate on deciphering the socioeconomic dimensions of vulnerability and adaptive capacity (with a focus on power dynamics, inequities, and behaviors) at a local scale.<sup>3</sup> M&E systems are supposed to

<sup>3</sup> Leading tools for CBA M&E are CARE International's Climate Vulnerability and Capacity Analysis methodology and the Community-based Risk Screening Tool—Adaptation and Livelihoods (CRiSTAL)

**FIGURE 2.2 M&E Focal Areas**

**SOURCES:** Adapted from Hedger et al. 2008; Spearman and McGay 2011.

**NOTE:** NGO = nongovernmental organization; RBM = results-based management.

function independently at the community level in order to succeed over the long term (Spearman and McGay 2011). CARE (2014) demonstrates that community-based CCA M&E can

- identify differentials in vulnerability and adaptive capacity across demographic groups (which is particularly useful in determining gender inclusion throughout the project),
- identify vulnerable and marginalized social groups,
- provide full inclusion of vulnerable groups in planning and implementation,
- understand and tailor activities to match each group's unique needs,

- ensure adaptation activities do not worsen vulnerability (i.e., contribute to maladaptation), and
- address power imbalances and other differentials in vulnerability between and in households.

Community-based M&E—and even more so, participatory M&E—transfers ownership of project M&E to the community, which is seen as being better positioned to evaluate changes and results due to the project. Effective M&E principally needs to capture decision making both at the individual/household level and within the wider environment in which those decisions are manifested into action (Villaneuva 2011). CBA M&E typically relies on indicators that are locally defined and monitored. Their specificity makes them inherently difficult to aggregate and compare at higher levels.

*Portfolio M&E* has emerged as the most common form of M&E because of the accountability and reporting needs of adaptation donors. It is found in the approaches of many international climate funds—such as the Adaptation Fund, the Least Developed Countries Fund (LDCF), the Special Climate Change Fund (SCCF), the GEF, and the Climate Investment Funds (CIF)—and the climate funding of agencies such as the Japan International Cooperation Agency (JICA), the U.K. Department for International Development (DFID), the Swedish International Development Cooperation Agency (Sida), and the U.S. Agency for International Development (USAID). The M&E systems here are often centered on an input-activities-output-outcome logic model and results framework. This focus normally requires that project agencies/donor recipients conduct the M&E (independently or through a third party), and that information is then aggregated to the portfolio level (AF 2011; CIF 2014b; Sida 2013). Because of that need for aggregation



tion, portfolio-focused M&E is heavy on outcome indicators.

*Policy-driven M&E* is grounded in processes such as the UNFCCC national communications, national adaptation plans, and national adaptation programs of action. Compared to the CBA and portfolio M&E focal areas, M&E at the policy level is not considered to be as mature and developed due to a historical lack of funding. However, this situation is changing, as awareness of adaptation grows within national governments. New national adaptation programs of action and national adaptation policies have seen improved frameworks for tracking results; sometimes, independent results frameworks have been developed (Spearman and McGay 2011). For example, the government of the Philippines is currently developing a national CCA M&E system, informed by a nationally defined adaptation hypothesis and theory of change (Aquino 2013). To date, only the United Kingdom has a committee on climate change that independently assesses the government's CCA progress and reports to the U.K. parliament (Biesbroek et al. 2010; Hammil et al. 2014).

National-level M&E focuses on measuring progress toward policy targets or building institutional capacity (i.e., governance, adaptive capacity of institutions and governance systems). Evaluations might look at how policies are linked to implementation at the project level, or at how well they are interpreted by various institutions.

Within these three focal areas, there are distinctive challenges in developing adaptation indicators (box 2.1).

#### BOX 2.1 Challenges in Indicator Development by M&E Focal Area

##### CBA M&E

- Work with different set of inputs and expectations that can be highly localized
- Need to develop indicators that do not rely on community institutional memory (for long-term evaluations)

##### Portfolio M&E

- Need for indicators that can easily be aggregated can lead to overstatement of results
- Indicators do not always capture local contexts

##### Policy M&E

- Indicators tied to policy goals might be difficult to monitor and evaluate if governments change frequently or move suddenly from one priority to another
- Indicators should be informed by, but not biased toward, specific policy goals

SOURCE: Hedger et al. 2008; Spearman and McGay 2011; Sida 2013.

## 2.3 HOW EVALUATION USE INFORMS THE M&E FRAMEWORK AND INDICATORS

Establishing the purpose of an evaluation is a critical first step that maximizes the utility of the M&E process. Identifying its use helps to get the most out of the evaluation process and underpins the development of appropriate adaptation indicators.

The purpose of evaluations varies. For CBA interventions, the purpose of the evaluation might be to learn what types of activities are successful for a particular community, and to share that learning with the community. For national-level interventions, the evaluation could be used for building an evidence base for the development of a new adaptation policy. M&E may also be harnessed to bet-



ter understand equity in adaptation interventions, provide accountability, improve learning, strengthen future adaptation interventions, and develop comparative assessments (Pringle 2011).

The evaluation's purpose creates the context for establishing indicators. For instance, if the purpose is to assess the

effectiveness of interventions across different regions, indicators that are easily comparable between regions are desired. Also important is who will be using the evaluation evidence base and how. Evaluation use should thus be approached with a client lens in mind, taking into account the end beneficiary of the information and how it will be used.

## 2

### CHAPTER SUMMARY

- M&E has a central role in identifying future adaptation pathways and developing an evidence base for future projects, programs, and policies.
  - The wide range and complexity of adaptation M&E challenges require that practitioners identify them at the onset of CCA programming. Challenges include grounding M&E systems across temporal and spatial scales, the complexity of determinants and influences (attribution gap), a lack of conceptual clarity on terminology, the uncertainty of climate change and climate variation, dealing with counterfactual scenarios, and mitigating maladaptation.
- CCA M&E systems can be grouped in one of three focal areas: CBA, portfolio, and policy. Each focus has distinct characteristics and indicator challenges.
- Evaluation use should govern the M&E context, and a client perspective should be taken when framing the M&E system. Who will be the end users of the information? How will the information be used? Answering these questions can increase the likelihood of evaluations being used for adaptive learning.



PART II

# Frameworks and Classifications





# Commonly Used Frameworks

This chapter reviews commonly used CCA M&E frameworks, ranging from those created by experienced NGOs to those adopted by international funding windows. Practitioners can pick and choose elements of M&E frameworks when developing their own. Many of the frameworks discussed share overlapping elements, with similar approaches and methodologies. [Annex B](#) provides a tabular summary of all of the frameworks discussed here, which are presented in chronological order.<sup>1</sup>

M&E frameworks and indicator development for CCA have frequently reflected a top-down approach, based on the reporting and knowledge needs of climate finance mechanisms, funding windows, and donors. One exception to this is CBA M&E frameworks, which tend to take a bottom-up approach. These frameworks are typically developed for the livelihoods and disaster risk management sectors, and often take a population vulnerability perspective. Lately, with advances in the adaptation M&E field, more M&E frameworks are taking a two-tier approach, featuring mutually reinforcing top-down and bottom-up components. There is also an increasing interest in resilience-building concepts over adaptation.

## 3.1 UNDP CCA M&E FRAMEWORK

The United Nations Development Programme (UNDP) developed a CCA M&E framework to fulfill the mandates of the LDCF and the SCCF, two adaptation-focused climate funding windows mandated by the UNFCCC. The LDCF is designed to address the special needs of least developed countries in financing the preparation and implementation of national adaptation programs of action. The SCCF supports both long- and short-term adaptation activities that increase the resilience of national development sectors to the impacts of climate change.

The UNDP framework (UNDP 2007) is organized according to six thematic areas acknowledged by the Intergovernmental Panel on Climate Change as key climate-sensitive development priorities.<sup>2</sup> The framework is intended to guide UNDP staff in the design of M&E frameworks for adaptation initiatives within these thematic areas and “to ensure that logframes can be aggregated to track progress of an overall portfolio that is in alignment with Millennium Development Goals” (Bours, McGinn, and Pringle 2014c, 16).

The document provides clear guidance on developing and selecting indicators used to measure an aggregated portfolio

<sup>1</sup> This chapter has been informed by the core documents of the individual frameworks discussed, as well as by the CCA M&E framework review documents of Bours, McGinn, and Pringle (2014c); Hedger et al. (2008); and Sanahuja (2011).

<sup>2</sup> Infrastructure was initially mentioned as a seventh thematic area in the 2007 UNDP publication. However, no indicator examples were provided, and it was later discarded (see Kurukulasuriya 2008).

of activities in terms of coverage, impact, sustainability, and replicability. The framework links key thematic areas to adaptation processes and related indicator types (figure 3.1).

The framework is designed to aggregate indicator data from the project to the portfolio level, and encourages the use of consistent units of measurement for this purpose. The framework differentiates between a *core set of standard indicators* at the project and portfolio levels, applicable across all thematic areas; and *supplementary indicators*, which are defined specifically for each thematic area. A list of core indicators is provided for the project and portfolio levels. Project-level M&E examples are presented in the document's annex showing how project objectives and outcomes are linked to core and supplementary indicators, including a description of indicator type. The examples provide a useful illustration of the types of indicators that can be developed for these thematic areas.

Note the existing tension in designing

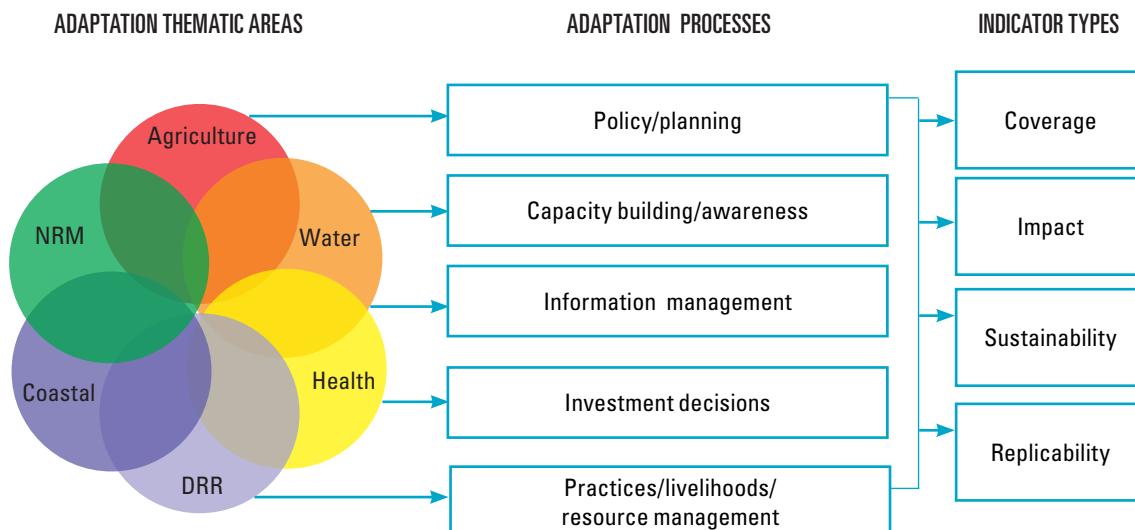
a set of standardized (global) indicators that are measurable, meaningful, and at the same time contextually useful at all scales or levels of intervention. Some of the core indicators provided seem oversimplified (e.g., number of communities involved in projects) or vague (e.g., perceived percentage change in participation) and might encourage the pursuit of quantity over quality as targets.

The UNDP framework remains a good example of an M&E approach that links and aggregates standard indicators within key sectors, and has informed and shaped some of the newer approaches that have since been developed by others.

## 3.2 MAKING ADAPTATION COUNT

The manual *Making Adaptation Count: Concepts and Options for Monitoring and Evaluation of Climate Change Adaptation* (Spearman and McGray 2011) builds on the work of the World Resources Institute as well as of the German Federal Enterprise for International Cooperation (GIZ).

FIGURE 3.1 UNDP CCA M&E Framework



SOURCE: Kurukulasuriya 2008.

NOTE: DRR = disaster risk reduction; NRM = natural resource management.

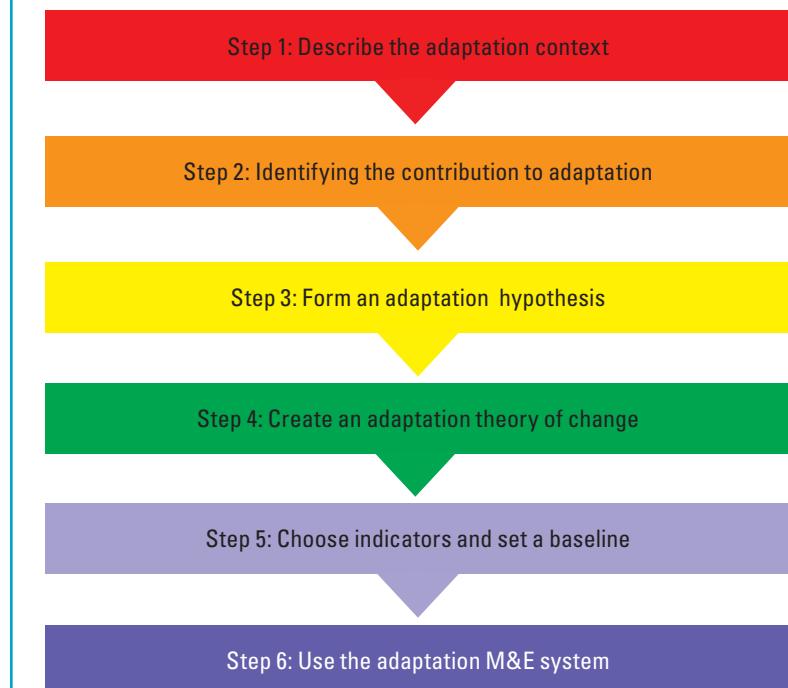


It leads the reader through a step-by-step decision-making process (figure 3.2) for developing CCA M&E systems, with a strong emphasis on matching an intended program to socioeconomic, environmental, climatic, institutional, and other key contexts.

Where the UNDP framework distinguishes between thematic areas and adaptation processes, Spearman and McGray propose “a three-part framework constructed around possible contributions to the adaptation process: adaptive capacity, adaptation actions, and sustained development in a changing climate” (Spearman and McGray 2011, 9). Each dimension addresses a unique contribution to adaptation, requiring appropriate indicator sets that reflect the differences in the concrete adaptation impacts anticipated. The authors provide example indicator sets for all three adaptation dimensions, accompanied by real-world examples as well as guidance on setting a baseline. There is also a discussion on the inherent tensions in shaping adaptation M&E systems. Further, the manual includes a rich discussion on the use and (dis)advantages of process versus outcome indicators.

The manual is designed to be flexible to anticipate and adjust to changing circumstances, acknowledging the existence of multiple pathways to success. This is in line with Hedger et al. (2008), a desk review commissioned by the GEF Independent Evaluation Office in which flexibility is seen as a key factor in determining adaptation success. Spearman and McGray’s work further balances accountability and shorter-term results-based management (RBM) information needs against the necessity for “effective learning in the complex context of adaptation” (Spearman and McGray 2011, 20). This excellent manual lays the groundwork for the GIZ manual, *Adaptation Made to Measure* (Olivier, Leiter, and Linke 2013).

**FIGURE 3.2 *Making Adaptation Count’s* Steps for Developing an M&E System for Adaptation Interventions**



SOURCE: Spearman and McGray 2011.

### 3.3 LEARNING TO ADAPT

The manual *Learning to ADAPT: Monitoring and Evaluation Approaches in Climate Change Adaptation and Disaster Risk Reduction – Challenges, Gaps and Ways Forward* (Villanueva 2011) represents “a methodological contribution to the emerging debate on M&E in the context of climate change adaptation and disaster risk reduction” (Villanueva 2011, 6). Aimed primarily at an audience of national-level practitioners, it focuses on M&E at the interface of CCA, disaster risk management, and development. The author explores the “synergies, convergence and differences” (Villanueva 2011, 11) between these fields, highlighting significant challenges and their implications.

The manual makes a case for M&E systems that are tailored to these unique circumstances, given that disaster risk

management indicators “may fall short in monitoring and evaluating changes in the underlying causes of vulnerability, accounting for uncertainty and learning in relation to decision-making processes” (Villanueva 2011, 25). Villanueva identifies concerns characterizing the M&E of adaptation that are intertwined, mutually reinforcing, and leading to the conclusion that “evaluation approaches and M&E methodologies currently used in adaptation initiatives and disaster risk management are missing an orientation towards learning and understanding of how adaptation and adaptive capacity develops” (Villanueva 2011, 34).

The ADAPT principles (box 3.1) are proposed, with a strong emphasis on process-focused evaluations that capture learning and contribute to “an evidence-based understanding of adaptation in practice” (Villanueva 2011, 17). The author translates these M&E principles into indicator development principles (discussed later in the study) that emphasize the quality—not the quantity—of indicators. ADAPT indicators focus on change processes and the wider enabling environ-

ment in which these changes and adaptation processes take place.

### 3.4 ADAPTATION FUND RESULTS FRAMEWORK AND BASELINE GUIDANCE: PROJECT-LEVEL

The Adaptation Fund is a financial instrument under the UNFCCC to finance concrete adaptation programs and projects in developing countries that are party to the Kyoto Protocol. The *Results Framework and Baseline Guidance: Project-level manual* (AF 2011) helps actual and potential Adaptation Fund-implementing agencies to design program baselines and results frameworks by “clarifying core Adaptation Fund (AF) indicators, and suggesting ways to measure them” (AF 2011, 3).

The manual provides instructions on how to design a project’s logical framework and M&E system that is aligned with the fund’s strategic results framework. The results architecture provides goals, outputs, and outcomes with related indicators as well as basic guidance on data collection, analysis, and reporting on these indicators. The manual distinguishes between core Adaptation Fund indicators used to aggregate disparate project and program data into an overall portfolio, and project indicators that can be chosen at the project level with no apparent need for aggregation. A guidance note (AF 2014) further describes how to define and measure core indicators at the project level. Many of the core Adaptation Fund indicators seem to focus on climate proofing development, addressing short-term incremental changes in existing risks.

The manual does not aim to “provide tools for selecting and measuring project specific indicators” (AF 2011, 3). Nevertheless, a process for selecting indicators is presented, including a checklist (table 3.1) based on the Canadian Inter-

#### BOX 3.1 The ADAPT Principles

- Adaptive learning and management emphasize the need for methodological flexibility and learning.
- Dynamic monitoring establishes dynamic baselines that provide real-time feedback to inform practice.
- Active understanding is required of decision-making processes and cultural and behavioral factors influencing the adaptation process.
- Participatory approaches that recognize adaptation to be a context-specific and local process.
- Thorough by avoiding maladaptation, including the M&E of enabling activities/enabling environment and recognizing stakeholders, processes, and stressors across scales.

SOURCE: Villanueva 2011.

**TABLE 3.1 Adaptation Fund Checklist for Selecting Proper Indicators**

<b>Valid</b>	Does the indicator measure the result?
<b>Precise</b>	Do stakeholders agree on exactly what the indicator measures?
<b>Practical, affordable, simple</b>	Is information actually available at a reasonable cost? Will it be easy to collect and analyze?
<b>Reliable</b>	Is it a consistent measure over time?
<b>Sensitive</b>	When the result changes, will the indicator be sensitive to those changes?
<b>Clear</b>	Are we sure whether an increase is good or bad?
<b>Useful</b>	Will the information be useful for decision making, accountability, and learning?
<b>Owned</b>	Do stakeholders agree this indicator makes sense to use?

SOURCE: AF 2011.

national Development Agency's six criteria for good indicators (Binnendijk 2001).

The main takeaway of this manual is that there is no such thing as the ideal indicator, but the minimum number of indicators needed to characterize the most basic and important measures of a project or program should be chosen with the aim of providing useful information at an affordable cost.

intervention, and limitations placed on the evaluation. Before proceeding to indicator development, the toolkit poses the question, "What do you measure against?" The three possible answers explored are as follows:

- Measuring against the objectives of the intervention
- Measuring against emerging understanding of good adaptation
- Measuring against a baseline

### 3.5 UKCIP ADAPTME TOOLKIT

The *AdaptME Toolkit* (Pringle 2011) of the U.K. Climate Impacts Programme (UKCIP) provides practical guidance through a series of questions that make readers reflect on critical elements of their adaptation M&E endeavor. The toolkit is not a prescriptive set of instructions or a clear-cut framework to follow, but a flexible set of guiding questions. It can be used to inform an entire M&E design, or to tweak elements of an existing M&E system to make it more relevant for adaptation interventions.

The author asks pertinent questions on the type of evaluation needed (linked to evaluation use), the logic and assumptions underpinning the adaptation intervention, the challenges faced when evaluating the

The answer also depends on the type of evaluation needed and anticipated evaluation use, and should further inform indicator development. The author stops short of making this connection, but provides a useful list of pointers and questions to take into account when developing indicators. The list of guiding principles for good adaptation included in the annex can also serve as guiding principles for indicator development.

### 3.6 AMAT

The [LDCF/SCCF Adaptation Monitoring and Assessment Tool](#) (AMAT) tool (GEF 2010, 2012) has been designed to measure results at the portfolio level and

aggregate these to report progress at an international level. It is intended as a tracking tool that will enable the GEF to track and examine common indicators over time so as to assess progress and identify measurable achievements for the LDCF/SCCF. The tool has been informed by the principles and sample indicators of the LDCF/SCCF results-based management framework (GEF 2008, 2009, 2010) and includes “indicators that are relevant and measurable at different spatial and temporal scales” (GEF 2010, 3). Whereas the GEF’s earlier results-based management documents (GEF 2009 and 2010) highlight process indicators, the AMAT’s focus is on outcome and output indicators.

The tool should be seen as a set of instructions that LDCF/SCCF-funded programs should follow for reporting purposes, and so its application in other contexts may be limited. However, it does provide succinct examples of how adaptation objectives, outcomes, and indicators might be categorized and aggregated. It includes a list of core outcome and output indica-

tors with metrics (although there is some scope for additional flexible indicators to be used), and applies a gender disaggregation when appropriate for the indicator.

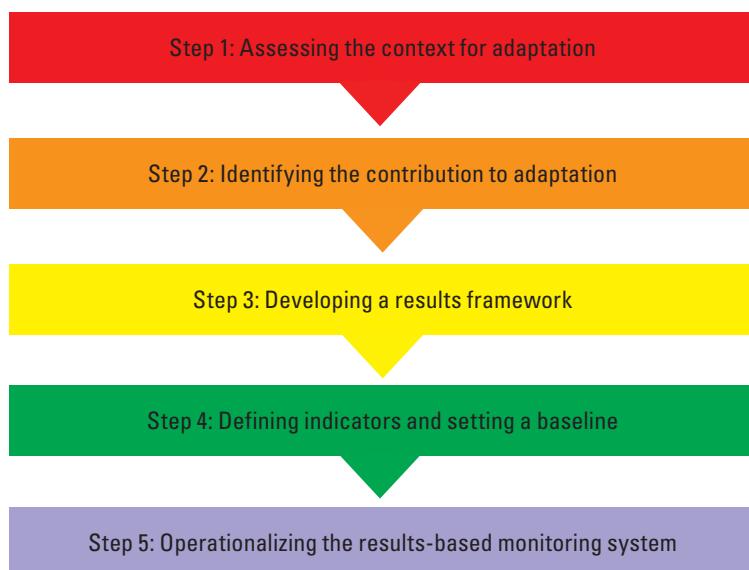
### 3.7 ADAPTATION MADE TO MEASURE

*Adaptation Made to Measure: A Guidebook to the Design and Results-Based Monitoring of Climate Change Adaptation Projects*, a GIZ manual developed by Olivier, Leiter, and Linke (2013), provides an overview of basic definitions, concepts, and uncertainties of—and challenges to—the M&E of adaptation interventions. The manual roughly adapts the step-by-step approach developed by Spearman and McGraw (2011; see figure 3.2). The main difference is that it combines Step 3, form an adaptation hypothesis, and Step 4, create an adaptation theory of change, into a single step, developing a results framework (figure 3.3).

Each of the steps is addressed in detail, accompanied by practical examples from a GIZ project in India and an Excel tool called Monitoring Adaptation to Climate Change (MACC) to guide users through each of the five steps (GIZ 2013a). Another Excel file accompanying the guidebook is a repository of indicators available online from adaptation projects in a variety of sectors (GIZ 2013b).

Like Spearman and McGraw (2011), the authors classify indicators by the results they are measuring toward specific adaptation processes. Dimension 1 focuses on building adaptive capacity. Indicators relate to the development of potential capacities to improve the quality of readiness for dealing with the effects of climate variability and climate change, with a focus on governance processes, information management, risk management and underlying strategies, frameworks, and systems in support of developing adaptive

**FIGURE 3.3 *Adaptation Made to Measure: Developing a Results-Based M&E System for Adaptation***



SOURCE: Olivier, Leiter, and Linke 2013.



capacity. Dimension 2 focuses on actual adaptation actions to reduce vulnerabilities, resulting in output and outcome indicators toward these actions. Dimension 3 looks at securing universal development goals despite climate change, by using climate-adjusted sustainable development indicators.

The guide includes useful information on the development of baselines, climate vulnerability assessments, and counterfactual analysis, making for a highly relevant and practical guide aimed at those working at the project level on adaptation activities in developing countries and those monitoring such interventions.

### 3.8 TAMD FRAMEWORK

The Tracking Adaptation and Measuring Development (TAMD) framework (Brooks et al. 2011, 2013; IIED 2012) was developed by the International Institute for Environment and Development and its partners. TAMD combines

assessment of how well climate risks to development are managed by institutions (Track 1 or upstream indicators), with assessment of how successful adaptation interventions are in reducing vulnerability and keeping development “on track” in the face of changing climate risks (Track 2 or “downstream” indicators).” (Brooks et al. 2011, 6)

Brooks et al. (2011) provide an in-depth discussion of types of adaptation and their implications for evaluation, key challenges in evaluating adaptation interventions, and resulting implications for adaptation evaluation criteria. Three indicator categories are proposed:

- *Climate risk management indicators* (Track 1) “evaluate the extent to which CRM [climate risk management] is integrated into development processes, actions and institutions” (Brooks et al.

2011, 6). There is an emphasis on categorical indicators, some of which can also be used as ordinal-level data (e.g., yes/partly/no).

- *Climate-relevant development vulnerability indicators* (Track 2) assess the reduction of human climate vulnerability. These are complemented by specific adaptation impact indicators, with an emphasis on quantitative/numeric indicators.
- *Opportunistic indicators* are to be used in situations that allow empirical assessment of the impacts of adaptation interventions on development outcomes, e.g., the occurrence of actual stresses and shocks.

The paper also includes a useful comparison between the TAMD approach and the Adaptation Fund as well as the Pilot Programme for Climate Resilience (PPCR) results and indicator frameworks.<sup>3</sup>

The 2013 working paper by Brooks et al. continues the operationalization of the TAMD framework, with further clarification of the differences and interaction between Track 1 and Track 2 adaptation processes. It provides in-depth direction on how to design and measure appropriate outputs, outcomes, and impacts across sectors and tracks when applying the framework. A number of indicators are identified that can be used at different levels of each of the two tracks. Summary explanations and scorecards are provided for nine Track 1 indicators, and a [series of methodological notes](#) for each of these indicators has been developed as separate documents.

The TAMD framework and indicators are currently being piloted in five coun-

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<sup>3</sup> Note that the PPCR results framework has since been updated. See CIF (2014b).

tries: Ghana, Kenya, Mozambique, Nepal, and Pakistan. The extensive differences between these pilot countries in terms of national circumstances, established policy frameworks, and climate governance structures—as well as the scale of adaptation investments and interventions (IIED 2013a and 2013b)—will provide an interestingly diverse picture of the TAMD framework’s applicability in a cross-intervention (e.g., Adaptation Fund, GEF, International Climate Fund, PPCR) setting.

### 3.9 TANGO RESILIENCE ASSESSMENT FRAMEWORK

The TANGO Resilience Assessment Framework, or the Framework for Resilience Measurement and Evaluation, was

developed as part of a 2013 expert consultation on resilience measurement for food security conducted for the Food and Agriculture Organization of the United Nations and the World Food Programme. The framework has a strong geographic focus on Africa and a thematic emphasis on livelihoods, disaster risk reduction, and food security. Box 3.2 clarifies the differences between adaptation and resilience.

The TANGO Resilience Assessment Framework was first presented in a discussion paper by Frankenberger et al. (2012). It integrates a livelihoods approach, a disaster risk reduction approach, and various elements of climate change approaches to address underlying causes of vulnerability. The discussion paper provides examples of quantitative and qualitative outcome indicators. Indicators for measuring resilience fall under three broad categories of resilience outcomes, resembling the three results dimensions used by Spearman and McGay (2011) as well as by Olivier, Leiter, and Linke (2013):

- Improved capacity to manage risks (equal to short-term adaptive action or absorptive capacity)
- Improved adaptive capacity
- Improved development, which can be seen as the path to transformative capacity

Frankenberger and Nelson’s (2013a) background paper provides an extensive list of current practice examples of measuring resilience. A revised version of the TANGO framework (figure 3.4) can be found in the learning agenda (Frankenberger et al. 2013a, 9), differentiating community assets, types of capacities needed, and areas of collective action. The same publication also provides an updated measurement framework, adding the five areas of collective action (figure 3.5). A list of illustrative indicators

#### BOX 3.2 Adaptation versus Resilience

There is no one overarching definition for **adaptation**. Different stakeholders use different words to describe what adaptation is; various definitions characterize it as a process, adjustment, set of practical steps, or outcome (OECD 2006). “Variations in defining adaptation are probably rooted in the fundamental difference between definitions of climate change provided by the UNFCCC and the IPCC [Intergovernmental Panel on Climate Change]” (OECD 2006, 7). Moderating harm, protecting from damage, and coping with consequences are concepts contained in several definitions; these point toward a focus on vulnerabilities and can lead to an impression of passive actors that endure climate impacts.

Most **resilience** definitions take off from the capacity of a system, community, or society to resist disturbance while maintaining an acceptable level of functioning and structure (UNISDR 2004). The Rockefeller Foundation (2009), inspired by Folke (2006), defines climate change resilience as “the capacity of an individual, community, or institution to dynamically and effectively respond to shifting climate impact circumstances while continuing to function at an acceptable level” (Rockefeller Foundation 2009, 1). Other elements frequently seen in resilience definitions focus on resisting, maintaining integrity, bouncing back, and improving risk reduction (OECD 2006, 15). Resilience definitions often depart from capacities to be developed and used, with an active role for those affected, and a longer-term systemic transformation element that reflects dynamism.



is provided in the annex. Note that the frameworks and accompanying indicators have been applied in East Africa and Asia. Two technical papers (Barrett and Consta<sup>s</sup> 2013; Consta<sup>s</sup> and Barrett 2013) further inform the discussion. The first paper lays out a theory of resilience and implications for programming and measurement; the latter considers metrics, mechanisms, and implementation issues for measuring resilience to food insecurity.

In their summary paper, Frankenberger and Nelson (2013b, 6) conclude that “new resilience indicators are likely not needed, but rather, new ways of assessing the information might be critical.” This makes sense, given the framework’s focus on community and household-level livelihoods and disaster risk resilience. An overview of proposed indicators is provided, which groups indicators in the following four categories:

- Baseline well-being and basic conditions indicators, i.e., indicators of the initial dynamic state
- Disturbance indicators that measure shocks and stresses
- Resilience response indicators grouped around the previously mentioned categories of resilience outcomes (Frankenberger and Nelson 2013a) and divided by area of collective action (Frankenberger et al. 2013a)
- End-line well-being and basic conditions indicators to allow for analysis of changes over time

### 3.10 IISD CLIMATE RESILIENCE AND FOOD SECURITY FRAMEWORK

The International Institute for Sustainable Development’s (IISD) Climate Resilience

and Food Security Framework was developed in Central America to enable users to analyze and strengthen the food security of vulnerable populations. The IISD working paper (Tyler et al. 2013) explores approaches to monitoring food system resilience in a changing climate and presents a conceptual tool to assess food systems over the long term.

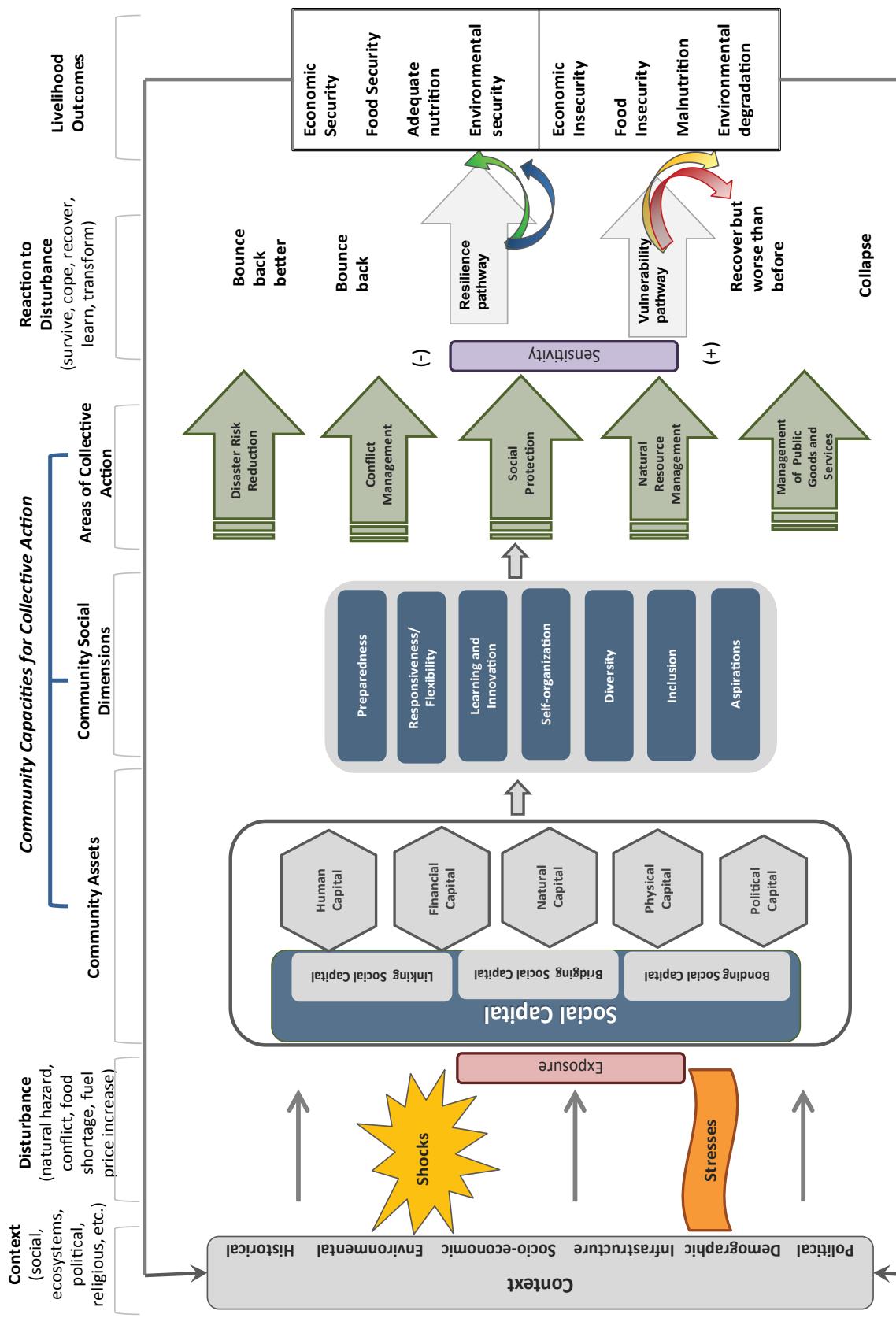
The document opens with a brief introduction to food systems, followed by an outline of climate resilience approaches and normative criteria for resilience. The integrated conceptual framework is introduced, consisting of two analytical tools illustrated by two “spinwheels.” The first spinwheel provides a context analysis and focuses on the elements of the food system of importance to the community. The second spinwheel (figure 3.6) lays out key aspects that make a food system climate resilient. The two spinwheels differ in application, are neither interchangeable nor stand-alone and can be used at the community or national level. For the community-level, the spinwheels support the Community-based Risk Screening Tool—Adaptation and Livelihoods (CRiSTAL) software tool for project planning and management,<sup>4</sup> which “helps users to integrate risk reduction and climate change adaptation into their community-level work” (Tyler et al. 2013, 14).

The working paper further discusses the development of indicators to track changes over time. It distinguishes between national-level indicators to inform policy making and community-level indicators to guide household activities. The second spinwheel leads the indicator development by means of key resilience questions, accompanied by a range of potential indicators. The tool, however, focuses mainly on assessing resilience: it

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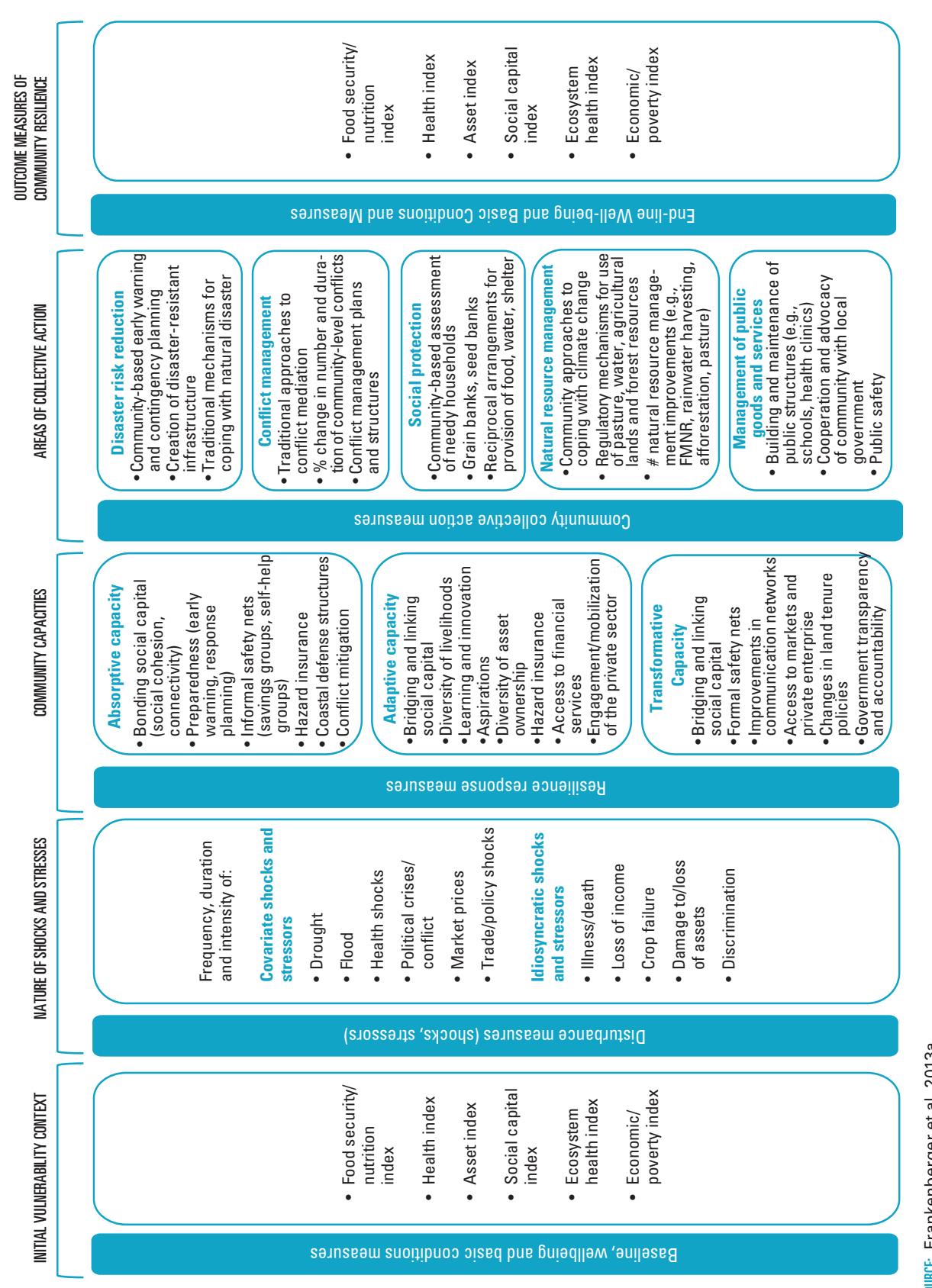
<sup>4</sup> The CRiSTAL software and manual are available at <http://www.iisd.org/cristaltool/>.

**FIGURE 3.4 TANGO Resilience Assessment Framework**

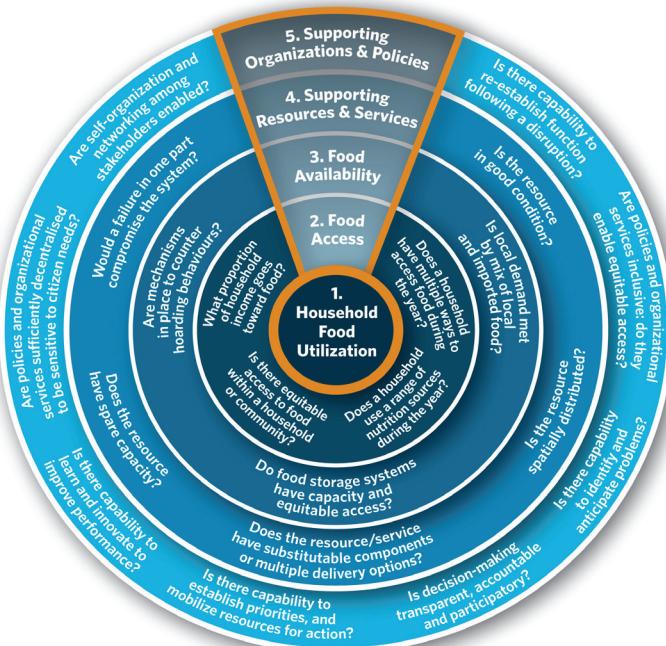


SOURCE: Frankenberger et al. 2013a.

**FIGURE 3.5 Proposed Indicators for Estimating Food Security Resilience**



SOURCE: Frankenberger et al. 2013a.

**FIGURE 3.6 Community Food Security and Resilience Analysis**

SOURCE: Tyler et al. 2013.

does not offer guidance on developing a full M&E framework or how to measure the proposed indicators.

### 3.11 PROVIA

The Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation ([PROVIA](#)) aims to provide technical guidance at the national/international level for research on vulnerability, impacts, and adaptation in order to shape international policy and practice. In 2013, PROVIA published a trio of documents, including a comprehensive guidance manual and summary report on assessing vulnerability, impacts, and adaptation to climate change (Hinkel et al. 2013a, 2013b); and a paper outlining applied research priorities in CCA aimed at a research/policy audience (Rosenzweig and Horton 2013).

The manual summarizes existing tools and approaches, together with an overarching framework structured “along a five-stage iterative adaptation learning cycle” (Hinkel et al. 2013b, 3), which outlines the following adaptation steps: (1) identifying needs, (2) identifying options, (3) appraising options, (4) planning and implementing actions, and (5) M&E of adaptation. The M&E section provides an overview of different M&E purposes and approaches, and emphasizes those M&E tools that focus on learning and reflection.

In early 2014, Bisaro et al. published a user companion to assist policy makers in the use of the PROVIA guidelines alongside their national adaptation plan technical guidance documents.

### 3.12 PPCR MONITORING AND REPORTING TOOLKIT

The PPCR helps developing countries integrate climate resilience into development. It is one of the programs under the Strategic Climate Fund, which is one of two funds within the CIF framework. PPCR programs are country led, supported by the respective multilateral development bank, and build on national adaptation programs of action and other national development programs and plans.

The collection of documents that make up the PPCR Monitoring and Reporting Toolkit (CIF 2012, 2013a, 2013b, 2014a, 2014b) presents the PPCR logical model and revised results framework. It provides instruction (including scorecards and tables) for national governments implementing PPCR programs on how to complete the monitoring process in line with PPCR requirements. The logic model includes five core indicators, each consisting of multicriteria scores on which all PPCR countries are required to report:



- 1.** Degree of integration of climate change in national, including sector, planning
- 2.** Evidence of strengthened government capacity and coordination mechanisms to mainstream climate resilience
- 3.** Quality and extent to which climate-responsive instruments/investment models are developed and tested
- 4.** Extent to which vulnerable households, communities, businesses, and public sector services use improved PPCR-supported tools, instruments, strategies, and activities to respond to climate variability or climate change
- 5.** Number of people supported by the PPCR to cope with the effects of climate change

Core indicators 1 and 2 measure progress at the national level; while core indicators 3, 4, and 5 measure progress at the PPCR project and program levels. No information is provided on indicator development, because the core indicators are a given. However, the implementing national governments set their own criteria and scoring scales for each indicator scorecard, which will have a positive impact on programmatic ownership. There are very clear definitions, directions, and guidelines to ensure that indicator data are collected and reported correctly.

As with other agency-specific standardized monitoring and reporting systems—like the Adaptation Fund results framework or the LDCF/SCCF AMAT approach—the PPCR materials are targeted to the implementing partners and are not intended to engage a broad audience. However, the PPCR Toolkit is a good example of a practical overarching results framework at the portfolio level.

### 3.13 COBRA TOOL

The Community-Based Resilience Assessment (CoBRA) tool intends to measure and identify the building blocks of community resilience characteristics. It aims to assist drought and disaster risk reduction programs, currently with a geographic focus on the Horn of Africa, with robust analytics tools to better assess resilience at the local level.

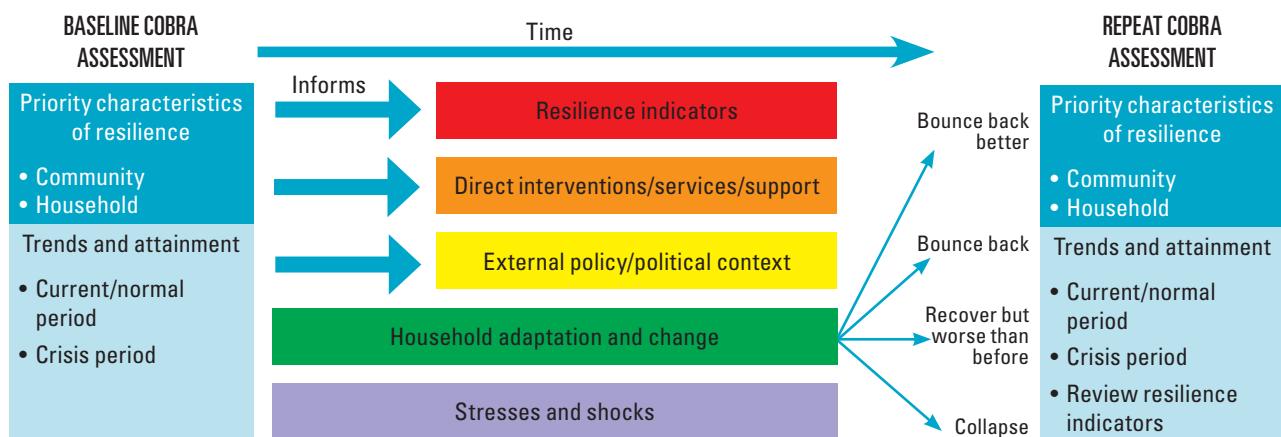
The CoBRA conceptual framework paper (UNDP 2014a) aims to provide a multifaceted approach at scale to measure resilience. Building on the existing evidence base in disaster resilience, it presents a framework (figure 3.6) with a strong focus on community- and household-level resilience. It also provides a brief but useful overview of components and potential indicators of community resilience in its annex.

CoBRA implementation guidelines (UNDP 2014b) have been developed to support organizations that want to undertake initial (and repeat) CoBRA assessments. Through a step-by-step approach, the authors move through the resilience assessment process, including a useful description of field assessment steps. Participants develop and prioritize their own resilience characteristics, but a list of standard statements most commonly mentioned is provided in Supporting Document 10;<sup>5</sup> these statements and scoring information could be read as guidance for indicator scorecards.

The results of a data collection exercise are grouped and analyzed in five main sustainable livelihoods framework categories;

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<sup>5</sup> The CoBRA supporting documents are available at [http://www.undp.org/content/undp/en/home/librarypage/environment-energy/sustainable\\_land\\_management/CoBRA.html](http://www.undp.org/content/undp/en/home/librarypage/environment-energy/sustainable_land_management/CoBRA.html) (ignore the pop-up window and click on “Implementation Guidelines”).

**FIGURE 3.7 Revised CoBRA Framework**

SOURCE: UNDP 2014a.

these could be termed core indicator categories:

- Physical capital
- Human capital
- Financial capital
- Natural capital
- Social capital

Although the guidelines focus on the qualitative element of the approach, including the useful identification of specific characteristics of resilient households within a given community, the outcomes of the overall process can be presented in a standard two-page summary scorecard (Supporting Document 15), with core indicators presented in lists and spider charts/radar diagrams (Supporting Document 13). Results of a first round of field testing in four drought-prone locations in Kenya and Uganda are summarized in a CoBRA findings report (UNDP 2014c).

### 3.14 PMERL PROJECT FOR CBA

CARE has always been a strong proponent of community-based participatory approaches; it was in the 2009 “Climate Vulnerability and Capacity Analysis” hand-

book (Dazé, Ambrose, and Ehrhart 2009) that this was first joined with climate programming. While the handbook provided useful guidance and tools for identifying and analyzing climate vulnerability at various levels, the “how to” of CBA is further explained in CARE (2010a).

CARE’s “Framework of Milestones and Indicators” publication (CARE 2010b) extends the CBA framework into M&E territory with an extensive list of milestones and indicators to help track the progress of CBA interventions at the household/individual level, local government/community level, and national level. The document should be seen as a menu of indicators to guide and inspire indicator thinking, as opposed to a prescriptive list of predefined indicators. The implementation of a gender approach is apparent in some of the indicators and informed by CARE’s adaptation, gender, and women’s empowerment brief (CARE 2010c).

The indicator list (CARE 2010b) was initially developed as a guide to use within programs’ existing M&E systems. The “Participatory Monitoring, Evaluation, Reflection and Learning for Community-Based Adaptation Manual”—or the



PMERL manual for short—(Rossing et al. 2012) recognizes the importance of an M&E approach aimed at participatory adaptation interventions that puts learning and feedback loops at the forefront. The goal is not to replace the traditional M&E system, but to make the M&E process participatory and guided by the principle that CBA is a local process-oriented approach—which should be reflected in the M&E process.

The 2012 PMERL manual was recently been updated (CARE 2014) with more attention given to the PMERL process and a little less attention given to the tools. One of the first steps of the PMERL process is to decide what to monitor. The type of information to monitor can be *results*—both the output/outcome as well as the process of getting to these results, the *practice* of people—whether there is a change in behavior—as well as the *context* in which the CBA intervention takes place.

The next step of developing indicators in a participatory manner is formulated around four key questions, which could be seen as the PMERL indicator principles:

- Which are the indicators that tell most about the results/practice/context?
- Which indicators reflect the needs of more than one stakeholder group?
- Are there any indicators that provide information about whether the change reaches the poorest and most marginalized groups, including women?
- Do any indicators need to be adapted or changed over time due to changing realities?

A number of more specific questions follow up on the above four questions, for example: “Do we have indicators that can tell us whether the change in outcome reaches women/men/boys/girls appropriately, and in particular the poorest and marginalized groups?” and “Are there indicators to measure changes in inequalities over time?” (CARE 2014, 25).

All of the materials highlight the importance of gender mainstreaming within CCA and the development of PMERL processes, including indicator development.

### 3 CHAPTER SUMMARY

- M&E frameworks are often developed with a specific spatial scale in mind, informed by the organization's focus, though with upward or downward linkages to other scales. Multilateral funds and institutions (UNDP, LDCF/SCCF, GEF, Adaptation Fund, PPCR, etc.) have a portfolio or project-level focus; other frameworks are more suited to national contexts (PROVIA), are geared toward community adaptation and resilience (IISD CRiSTAL, CoBRA, CARE), or aim to cover and connect multiple scales (TAMD, AdaptME).
- Indicators are tailored to the M&E frameworks' use. For example, top-down frameworks of multilateral funds and institutions make use of more quantifiable indicators, predetermined core indicators, and scorecards that can be easily aggregated to the portfolio level. Bottom-up frameworks with a focus on CBA provide more space for the use of more qualitative indicators and the development of local, context-specific indicator sets.
- M&E frameworks vary in the ways they group indicators. For example, UNDP categorizes indicators according to coverage, impact, sustainability, and replicability; Spearman and McGray (2011) and Olivier, Leiter, and Linke (2013) focus on three broad dimensions (adaptive capacity, adaptation action, and sustained development). The TANGO framework, on the other hand (Frankenberger et al. 2013b), focuses on adaptation capacities (absorptive capacity, adaptive capacity, and transformative capacity).
- Differences between adaptation and resilience are subtle yet important. Adaptation focuses on vulnerabilities, and how the vulnerable endure climate impacts. Actors are at times seen as passive. Resilience thinking focuses on the capacities that are developed and used by individuals and institutions. Actors are often regarded as having a more active and dynamic role.
- Many frameworks stress the need for practitioners to critically reflect on the process of indicator development. Broad reflective questions are provided in many examples, but most frameworks fall short of providing clear good practice principles of indicator development and selection.



## CHAPTER 4

# Adaptation Indicators: Purpose and Classifications

Although the published M&E conceptual frameworks help illustrate ideas and dimensions of an adaptation project or program, they do not necessarily provide a clear set of indicators with which to work. The process of designing, selecting, and using indicators is informed by the M&E framework or approach chosen and should be undertaken iteratively, alongside experts and stakeholders. Indicators transform the M&E conceptual framework into a practical instrument. This part of the study builds on the CCA M&E discussion presented in chapter 2 and takes an in-depth look at how indicators are used in an M&E system. What are the most common types of adaptation indicators, and how are they classified? How are they used? After establishing this foundation, chapters 5 and 6 explore good practice in indicator development, selection, and use.

Indicators underpin an M&E system's practical applicability and serve many purposes. They help practitioners know when outcomes or results have or have not been achieved; they serve as targets, providing a roadmap toward those outcomes; they inform adjustments to current interventions and decision making toward future interventions. Indicators are developed for all levels of a results-based M&E system, monitoring progress and success for inputs, activities, outputs, outcomes, and long-term goals.

They allow managers to track which levels in a results framework are meeting their performance targets and which ones are falling short (Kusek and Rist 2004). They are also a signal to managers that a different course of action might be needed. As a learning tool, indicators can provide valuable knowledge for institutions and governments for adaptive management. They deliver evaluative evidence for what has worked successfully in adaptation and what learned lessons should help guide future interventions or policy.

It is important to note that *indicators are only signals*. They cannot capture all dimensions of a given activity. A professional evaluator interprets the suite of indicators and other data to derive findings. Indicators should be seen as part of the whole organism of an M&E system. They assist in generating evidence-based knowledge by working in tandem with other parts of the system.

This chapter (1) reviews the most common types of indicator classifications for adaptation, (2) provides an overview of adaption indicators according to the logical framework approach, (3) discusses emerging classifications of indicators in the adaptation M&E landscape (such as those categorized according to adaptation dimension and capacity), and (4) looks at indicators used for aggregation such as indexes and composites (figure 4.1).

**The definition of an indicator varies widely (see annex B).**  
**The Organisation for Economic Co-operation and Development defines an indicator as “A quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement” with the purpose of “reflect[ing] changes connected to an intervention, or to help assess the performance of a development actor” (OECD 2002, 25).**

**FIGURE 4.1 Common Indicator Types and Classifications**

GENERAL INDICATOR CLASSIFICATIONS	ADAPTATION-SPECIFIC INDICATOR CLASSIFICATIONS
<ul style="list-style-type: none"> <li>Quantitative indicators</li> <li>Qualitative indicators</li> <li>Economic indicators</li> <li>Behavioral indicators</li> <li>Logical framework classification (output, outcome, process, impact)</li> </ul>	<ul style="list-style-type: none"> <li>Indicator classification by contribution to adaptation</li> <li>Adaptation indexes and core indicators</li> </ul>

## 4.1 QUANTITATIVE AND QUALITATIVE INDICATORS

Indicators can be defined either qualitatively or quantitatively. *Quantitative indicators* are, simply, numerical expressions of information (e.g., percentage increase/decrease, ratios, absolute numbers), while *qualitative indicators* are descriptive observations or assessments (e.g., results of an open-structured interview, description of a behavioral observation, narrative) (USAID 2010). Adaptation programming has traditionally emphasized the use of quantitative indicators in measuring results. This might be because they are easier to aggregate on a program or portfolio level, and provide hard data. Qualitative indicators, alternatively, usually require more in-depth data analysis and judgment.

Usually, one type of indicator is not sufficient to provide all of the information needed to review the effectiveness of a project. For instance, a quantitative indicator might not fully capture an achievement. An indicator such as number of community members trained in postdisaster response illustrates little about a project that aimed to increase the capacity of local communities to respond to extreme flooding. A suite of different indicators and indicator types should also be included.

Percentages are often preferable to raw numbers, because they highlight the extent of coverage.

Using the example above, the fact that people were trained says little about the training's usefulness or relevance. The focus should then be on the type of knowledge or capacities gained, and whether those people trained will have the opportunity to apply these capacities. A combination of both qualitative and quantitative indicators is recommended to capture project nuances. Qualitative indicators can provide clues into the integrity and sustainability of an intervention. In the example given, a qualitative indicator that could serve as a good complement is one that is score based: the practical value of the training on a scale of 1–5 as derived from surveys of trainees. Another indicator could be asking participants how they would apply the knowledge and/or skills gained, or what would hinder or prevent them from applying these skills.

In this regard, Lamhauge, Lanzi, and Agrawala (2011, 33) note that

The usefulness of quantitative indicators...depends on the nature of the data, scale and time horizon. In the short-term, the use of numerical targets, such as the number of policies developed and implemented by the third year might be easiest. However, in order to measure impact in the long-term, a percentage change in policies or advisories contributing to the enabling environment may be more informative.

Even though quantitative indicators are more abundant in CCA programming, many development cooperation agencies use a mix of both qualitative and quantitative indicators to help monitor and evaluate achievements. DFID, for example, implemented a program in Bangladesh whose goal was to train disaster management committee members in seven districts. To evaluate the program's effec-



tiveness, DFID chose two indicators: the number of people trained (quantitative), and an illustration of training internalization (qualitative). The qualitative indicator was able to provide more information on the program's sustainability and long-term effectiveness (Lamhauge, Lanzi, and Agrawala 2011). It also provided the evaluators with more information from the beneficiaries to better evaluate success. Some examples taken from adaptation programs of other development cooperation agencies are listed in box 4.1.

## 4.2 ECONOMIC INDICATORS

Economic indicators provide information on the economic cost of (in)action as well as on economic performance. In ex ante (before the event) assessments, economic indicators can provide decision makers with information to help make adaptation decisions or prioritize adaptation interventions. At the policy level, governments can use economic indicators ex ante to select the policy option that provides a high social and environmental return at the best financial value. In ex post (after the event) assessments, the economic performance of the chosen policy or intervention can be measured after implementation. This information can help show whether investments were used efficiently, effectively, and equitably, and can help policy makers make better-informed future policy decisions.

Adaptation planners and policy makers use several types of economic indicators to assess the costs and benefits of an action (or inaction). Below are the most common types that can be used in CCA (Fleming 2013; Noleppa 2013; UNFCCC 2011):

- ***Net present value.*** Net present value is the difference between the present value of benefits and the present value of costs. It is an indicator of how much an intervention adds financial value to a

### BOX 4.1 Examples of Quantitative and Qualitative Indicators Used to Measure Outcomes

- **Number** and **quality** of publications, articles, TV programs
- **Number** of policy makers and practitioners who demand information generated by the program and their **capacity** to use information (the means of verification included surveys, evaluations of grantee agreements, and a review of activities initiated by policy makers)
- **Number** of educational materials produced and the **extent** of their use
- **Number** of training programs and their **impact** on improved disaster preparedness
- **Number** of training programs and long-term **capacity** development activities

SOURCE: Lamhauge, Lanzi, and Agrawala 2011.

community, household, etc. If the net present value is greater than zero, then the intervention should be considered. Net present value is typically used ex ante.

- ***Benefit-cost ratio.*** The benefit-cost ratio is the ratio of benefits to cost, which indicates value for money. The higher the benefit-cost ratio, the more desirable the adaptation option is considered to be. It is used in both ex ante and ex post assessments.

- ***Internal rate of return.*** The internal rate of return is the discount rate at which the net present value is equal to zero. An adaptation option that has a higher internal rate of return thus would be preferred over one that has a lower internal rate of return. This indicator is typically used ex ante.

- ***Social return on investment.*** Social return on investment is much like a cost-benefit analysis, with the difference being that it also measures the human, environmental, and social costs

and benefits of an intervention. While such costs can be difficult to measure, this approach can nevertheless be a good tool to guide decision making in adaptation when the interventions are tied to a development goal. Social return on investment is used in both ex ante and ex post assessments.

- ***Cost-impact rank correlation.*** This approach can provide measurements of cost efficiency (or value for money) across a program or portfolio with various projects. It is a useful tool for comparing different project options, and is typically used ex ante.

- ***Value for money.*** Value for money is an economic concept that derives from the idea that public resources are best optimized when a balance is stricken between the “three Es”—**e**conomy (reducing cost of resources without compromising quality), **e**fficiency (increasing output for any measure of input), and **e**ffectiveness (successful achievement of outcomes). DFID uses this approach when considering decisions about development assistance interventions and contributions (DFID 2011; Jackson 2012).

Calculating only the economic benefits of CCA interventions has its limitations. A UNFCCC study (2011) found that (1) economic indicators cannot address equity considerations across stakeholder groups; (2) activities have to monetize costs and benefits that are experienced at different times (discount rates); and (3) this can be difficult under a changing, uncertain climate. Economic evaluations or appraisals are often done with short- or medium-term horizons in mind, even though adaptation may be a long-term process with horizons that go beyond traditional project timelines.

Economic indicators and/or assessments should not be the only tool used in adaptation decision making. As a stand-alone

tool, they do not guarantee sustainability or suitability. For example, an economic-focused analysis might reveal that it is economically advantageous to offer low insurance premiums to flood-prone communities, and a government might move forward with this decision. However, an economic analysis will not show the motivations of people to purchase such insurance, and perhaps there is lower demand than envisaged. Using only an economic analysis in this example might result in maladaptation if the funds toward the premiums could have been better utilized elsewhere but were diverted toward an adaptation decision that did not consider community demand.

## 4.3 BEHAVIORAL CHANGE INDICATORS

Behavioral change indicators monitor or evaluate behavioral changes or actions in an individual, group, organization, or system before, during, and after an intervention. In CCA M&E, these behavioral indicators are often seen in measuring adaptive and transformative capacity, and changes in risk perception or coping strategies. They are widespread in CCA M&E; some examples of behavioral change indicators are presented in table 4.1.

Behavioral change is challenging to measure, since behavior and behavioral shifts are often not logical or linear, but instead dynamic, changing, regressing, and progressing. Changes in behavior also can be subtle and difficult to observe or verify. Moreover, indicators can only provide so many clues (McKee et al. 2002). Practitioners must consider many dimensions in their evaluations, including how to monitor behavior over the longer term (perhaps well after an intervention has been completed), and how to define causal links. Because of these complexities, behavioral change interventions usually seek to demonstrate contribution to a desired out-

**TABLE 4.1 Examples of Behavioral Change Indicators**

Focal area	Indicator	Source
Adaptive capacity: general	Percentage change in stakeholder behaviors utilizing adjusted processes, practices, or methods for managing climate change risks, assessed via questionnaire-based surveys or other evidence	UNDP (2007); standard behavior indicator in indicator framework
Adaptive capacity: agriculture	Farmers adopt environmentally sustainable agriculture technologies and practices (supporting indicators: farmers practice composting, multiple cropping, intercropping, rotations, biological control, integrated pest management)	World Bank (2005)
Adaptive capacity: awareness	Modification in behavior of targeted population	Adaptation Fund, Objective 3: Reduce vulnerability and increase adaptive capacity to respond to the impacts of climate change, including variability at local and national levels (AF 2011, 2014)
Adaptive capacity: adoption of technology	% of targeted groups adopting adaptation technologies by technology type (% disaggregated by gender)	AMAT, Objective 3: Promote transfer and adoption of adaptation technology (GEF 2012)

come, rather than direct attribution (Vilanueva 2011).

## 4.4 LOGFRAME INDICATORS

As Bours, McGinn, and Pringle (2014d, 3) explain:

Logic models and frameworks ("log-frames")...focus on aligning the component parts of a programme into a hierarchy of clearly-specified goals, outcomes/objectives, outputs/results, inputs/activities, (usually) together with a set of measurable indicators to demonstrate progress.

Logframe indicators are generally designated for each level. Table 4.2 presents an example of a typical logframe.

### Output Indicators

Output indicators measure the quantity and efficiency of goods and services delivered by the implementing agent (Horsch 1997). Examples of output indicators in adaptation could be the number of peo-

ple served, number of earthquake-resistant houses built, etc. Output indicators are often linked to direct activity targets and, as such, are frequently measured for accountability purposes with a focus on the intervention's efficiency. Output indicators are the least controversial indicators in CCA, but they provide little information regarding the change a program is anticipated to support, as they account for a narrow interpretation of the longer-term change expected from an intervention. Consequently, there has been a shift in CCA M&E toward measuring outcomes rather than outputs (Lamhauge, Lanzi, and Agrawala 2011).

### Outcome Indicators

Outcome indicators measure the achievement of broader results. They can be used to measure the benefits an intervention is designed to deliver that are the consequence of achieving specific outputs through the provision of goods and services (Horsch 1997). When specific outcomes have been agreed upon by stakeholders, outcome indicators can measure

TABLE 4.2 Logical Framework

Level	Indicator	Means of verification	Assumptions
<b>Goal:</b> the overall aim to which the project is expected to contribute	Measures (direct or indirect) to show the project's contribution to the goal	Sources of information and methods used to show achievements were made	Important events, conditions, or decisions beyond the project's control that are necessary for achieving results or will affect the achievement of results
<b>Outcomes (or objectives):</b> the new situation the project is aiming to bring about	Measures (direct or indirect) to show progress toward the objectives		
<b>Outputs:</b> the results that should be within the control of project management	Measures (direct or indirect) to show if project outputs are being delivered		
<b>Activities:</b> the things that have to be done by the project to produce the outputs	Measures (direct or indirect) to show if project outputs are being delivered		

SOURCE: Bakewell and Garbutt 2005.

effectiveness (i.e., how well interventions are accomplishing their intended results). Outcome indicators seek to measure an explicit objective of an intervention; they demonstrate that an objective has been achieved and, potentially, the wider impact. Some examples of outcome indicators include the following (Spearman and McGray 2011):

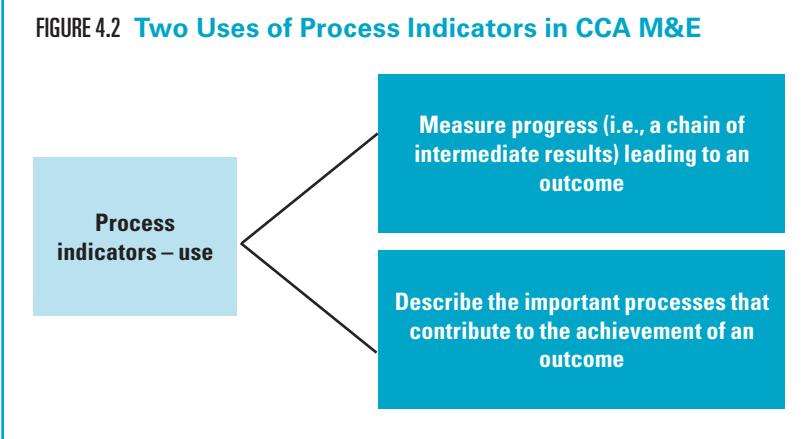
- Utility and quality of early warning systems
- Change in stakeholder response to climate risk or utilization of adaptation options
- Evidence of community, sectoral, or institutional understanding and capa-

bility to deal with or avoid climate-induced losses

### Process Indicators

If adaptation is seen as a progression toward greater resilience or adaptive capacity, there should be a distinction between monitoring progress toward this goal, instead of monitoring the delivery or achievement of specific outcomes. Herein lies the difference between outcome-based indicators, which are meant to measure a specific end point; and process-based indicators, which seek to define stages or progress toward a best case or desirable end point. Process indicators fall short of monitoring performance and reporting on outcomes. Rather, they monitor a course of action and consider the direction of travel at a given point in time (Pringle 2011).

FIGURE 4.2 Two Uses of Process Indicators in CCA M&amp;E



There are currently two schools of thought about the purpose of process indicators and what they are intended to measure (figure 4.2):

- The first maintains that process indicators are meant to measure progress toward a long-term outcome and the achievement of intermediate results leading to an outcome. Table 4.3

**TABLE 4.3 Process-Based Indicators**

Sector	Indicators for adaptation actions	Indicators for adaptive capacity
Agriculture	<ul style="list-style-type: none"> <li>● Implementation of measures to reduce soil erosion</li> <li>● Introduction of drought- and heat-resistant crops</li> </ul>	<ul style="list-style-type: none"> <li>● Research into farming techniques that accommodate climate change</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>● Removal of spatial barriers to increase natural adaptive capacity</li> <li>● Extension, connection, and establishment of buffer zones around protected areas</li> </ul>	<ul style="list-style-type: none"> <li>● Integration of adaptation into conservation management plans</li> </ul>
Water	<ul style="list-style-type: none"> <li>● Construction of flood-protection schemes</li> </ul>	<ul style="list-style-type: none"> <li>● Development of flood management policies/plans</li> </ul>

SOURCE: Harley et al. 2008.

illustrates some types of such process-based indicators for adaption according to sector and the area they are trying to influence.

- The second holds that process indicators are to measure important processes that contribute to the achievement of outcomes, by means of (indirect) indicators of quality and merit. The indicators do not guarantee the achievement of outcomes, but might explain how and why certain outcomes were—or were not—achieved.

Process indicators are preferred for complex and long-term adaptation interventions to capture contributions toward a longer-term goal that might not be achieved yet, or will not be achieved within a project's timeframe (Bours, McGinn, and Pringle 2014c; Pringle 2011; Sniffer 2012).

### Balancing Output, Outcome, and Process Indicators

Balancing the selection of output, outcome, and process indicators depends, to some extent, on both the nature of the program and the overarching purpose of its M&E framework (Lamhauge, Lanzi, and Agrawala 2011). Output and outcome indicators are especially suited to ensuring

that a program is on track toward meeting its targets. Process indicators better highlight progress toward larger strategic aims. Programs and policies would normally include both types of indicators, and there is no set formula for what constitutes best practice in this regard. Above all, planners should exercise judgment to select a suite of indicators tailored to the program at hand.

Note that the difference between outcome and process indicators is not always clear. Much of their distinction stems from the specific objectives of the project or program. The indicator “number of people trained” might be an outcome if the objective of the project is to conduct trainings. If the project objective is wider in scope—such as capacity building in disaster response—then the number of people trained could be a considered a process indicator (Bours, McGinn, and Pringle 2014b).

CCA practitioners need to select a balanced set of outcome and process indicators. While outcome indicators are best suited to providing organizations and institutions with clear evidence about program results, they can be misinterpreted as overstating project successes, and they might not be able to capture the complexities of what the underlying processes are for adaptation. Table 4.4 summarizes the

**TABLE 4.4 Outcome and Process Indicators: Advantages and Disadvantages**

Indicator type	Advantage	Disadvantage
Outcome based	<ul style="list-style-type: none"> <li>● Easier to compare results and link to other policy objectives and targets in other sectors</li> <li>● Most public policy objectives and targets are outcome based; easier to mainstream</li> <li>● Easier to aggregate</li> </ul>	<ul style="list-style-type: none"> <li>● Defining successful outcomes is difficult and does not necessarily guarantee successful adaptation</li> <li>● Risk of being too prescriptive of adaptation options and/or interventions</li> <li>● May be inflexible and difficult to introduce new information</li> </ul>
Process based	<ul style="list-style-type: none"> <li>● Allow stakeholders to choose appropriate adaptation activities that could lead to a successful outcome</li> <li>● Flexible and can easily adjust to new data/information during the project/program cycle and beyond</li> </ul>	<ul style="list-style-type: none"> <li>● Defining a process does not guarantee successful adaptation</li> <li>● Unfamiliar to many practitioners</li> <li>● Difficult to link and integrate into other policy areas</li> </ul>

SOURCE: Spearman and McGay 2011.

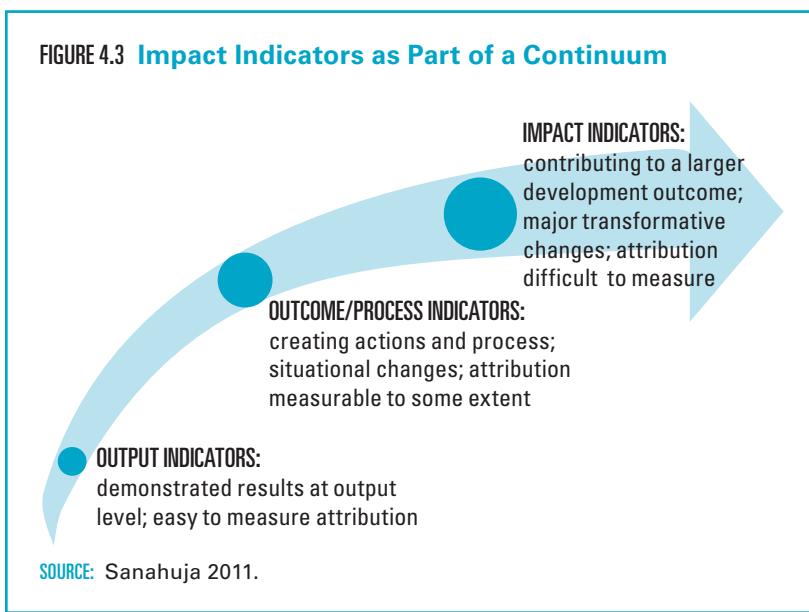
advantages and disadvantages of outcome and process indicators.

The best balance of process and outcome indicators is determined by the program context and the aims of the M&E framework itself. How will the indicator data be used and interpreted? For example, if the information that is derived from indicator data is mainstreamed with other policy initiatives, it might be more appropriate to use an outcome indicator since there is more leverage for cross-comparison and integration of information. However,

if the purpose of the evaluation is to better understand what worked and what did not work in an adaptation intervention, and to feed those lessons into adaptive management, then greater use of process indicators might be warranted.

### Impact Indicators

Impact indicators “provide a broad picture of whether the developmental changes that matter...are actually occurring” (UNDP 2002, 5). Changes in adaptive capacity and resilience may be captured by impact indicators (figure 4.3). Table 4.5 compares impact and outcome indicators. Impact indicators demonstrate concrete changes in the adaptation landscape.

**FIGURE 4.3 Impact Indicators as Part of a Continuum**

SOURCE: Sanahuja 2011.

Development agencies and funds have been increasingly interested in including impact indicators in their evaluations in order to assess the relationship between interventions and larger sustainable development aims. It is often difficult to attribute changes to specific interventions because there are usually myriad influences operating simultaneously. There are several ways to establish direct attribution, including various experimental or quasi-experimental research designs and other approaches to *counterfactual analysis* (see section 2.1). Undertaking these

**TABLE 4.5 Example of Potential Impact Indicators for Adaptive Capacity Projects**

Adaptation activity: Promote sustainable and efficient agricultural production	
Outcome indicator	Impact indicator
<ul style="list-style-type: none"> <li>● Improved collection and analysis of climatic data</li> <li>● Extent of diversification practices at farm level, based on crop/livestock/horticulture systems suited to local agro-ecological and climate projections conditions</li> <li>● Changes in awareness among farmers of climate change implications and adaptations practices</li> <li>● Improved water management</li> </ul>	<ul style="list-style-type: none"> <li>● Diversification of farm revenues from adoption of multiple cropping</li> <li>● Stability of yields/productivity over the long term</li> <li>● Regularity of off-farm employment opportunities for women and landless farmers over the long term</li> <li>● Soil and water improvements</li> <li>● Stability of farm-level returns over time</li> <li>● Maintenance of farm-level soil fertility and vegetative cover over time</li> <li>● Maintenance of quality and flow levels of watercourses</li> <li>● Changes in ecological footprint</li> </ul>

SOURCE: Adapted from World Bank 2005.

options may not always be feasible for various reasons, including expense, insecurity, and ethical considerations.

## 4.5 INDICATOR CATEGORIZATION BY ADAPTATION FOCAL AREA, DIMENSION, AND CAPACITY

### Classification by Adaptation Focal Area

There are many ways to classify sectoral adaptation activities and their correspond-

ing indicators. Many development cooperation agencies and adaptation funds have developed their own classification systems. Table 4.6 provides an example of the LDCF/SCCF and UNDP systems, which are based on research and findings from the Intergovernmental Panel on Climate Change. TANGO has classified adaptation into areas of collective action based on the experiences of the USAID Feed the Future program, which groups interventions according to programmatic areas believed to have the greatest impact on the longer term food security and resilience of communities.

**TABLE 4.6 Thematic and Sectoral Indicator Classifications**

LDCF/SCCF	UNDP	TANGO
<p>The LDCF/SCCF has defined the following as core development sectors:</p> <ul style="list-style-type: none"> <li>● Agriculture and food security</li> <li>● Water resources management</li> <li>● Coastal zone management</li> <li>● Infrastructure, including cities, transport and energy</li> </ul>	<p>UNDP has defined seven thematic areas representing strategic priorities defined by UNDP, the GEF, and the Intergovernmental Panel on Climate Change:</p> <ul style="list-style-type: none"> <li>● Agriculture/food security</li> <li>● Water resources and quality</li> <li>● Public health</li> <li>● Disaster risk management</li> <li>● Coastal zone development</li> <li>● Natural resource management</li> <li>● Infrastructure</li> </ul>	<p>The TANGO framework distinguishes five thematic areas, which are termed areas of collective action:</p> <ul style="list-style-type: none"> <li>● Disaster risk reduction</li> <li>● Conflict management</li> <li>● Social protection</li> <li>● Natural resource management</li> <li>● Management of public goods and services</li> </ul>

SOURCES: UNDP 2007; GEF 2009, 2010, 2012; Frankenberger et al. 2013a.

There is an emerging trend to categorize indicators by their contribution to adaptation. Several M&E frameworks discussed in chapter 3 characterize indicators by the type of adaptation that is occurring as part of the intervention. These indicator categories, called “dimensions” or “capacities” of adaptation, have been suggested by experts as a frame of reference for understanding how and where interventions are to support adaptation. Although there are multiple categories emerging in CCA M&E, this study presents two approaches based on adaptation *dimensions* and *capacities*.

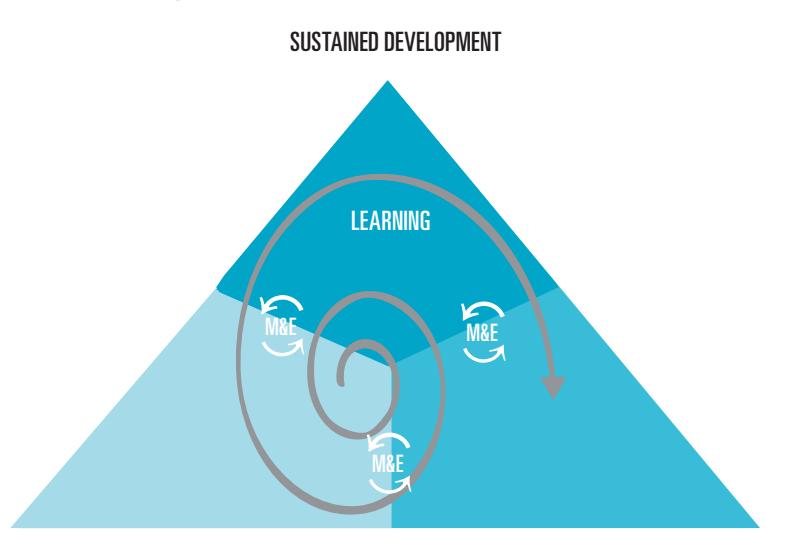
### Classification by Adaptation Dimension

Spearman and McGay (2011) and Olivier, Leiter, and Linke (2013) describe three specific dimensions of adaptation interventions that can assist experts when designing M&E systems and indicator sets for programs and projects. Each addresses a unique aspect of adaptation (figure 4.4):

- ***Adaptive capacity.*** Interventions that aim to build adaptive capacity focus on supporting people, communities, organizations, or systems in making proactive and informed choices about alternative adaptive strategies based on an understanding of changing conditions, and do so by providing the resources and technologies needed to facilitate behavioral change (Jones, Ludi, and Levine 2010). An example of an intervention with an adaptive capacity dimension would be one that builds institutional functions and capacities, such as the creation of a government body that communicates climate data to relevant ministries. Another example would be interventions that provide asset-related support, such as programs that help develop pro-poor financial products or seek to introduce appropriate adaptation technologies (Spearman and McGay 2011). Adaptive capacity indicators would focus on measuring an intervention’s success toward improving climate change and climate variability readiness.

- ***Adaptation action.*** Interventions categorized as adaptation actions are those that manage or directly reduce the bio-physical impacts of climate change. They focus on activities that directly address a discrete climate risk or vulnerability. Two types of indicators that can measure adaptation actions are climate risk indicators and vulnerability drivers. Climate risk indicators focus on the climate hazard that is putting communities or ecosystems at risk and measure the exposure/risk of the targeted population to the climate hazard. Vulnerability driver indicators look at climate vulnerability in relation to a host of nonclimatic factors, such as “variations in wealth, social equality, food availability, health and education status, physical and institutional infrastructure, and access to natural resources and technology” (Wilby and Dessai 2010, 181).

FIGURE 4.4 **Adaptation Dimensions**



SOURCE: Spearman and McGay 2011.



- **Sustained development.** Sustained development interventions work to sustain human development in a changing climate with a focus on co-benefits between various developmental priorities. Sustained development indicators track development, and development co-benefits, that manifest as a result of adaptation interventions. Two frequently used indicator types are those that measure ecosystem services and livelihoods. Ecosystem service indicators are developed with the understanding that ecosystem services underpin local economies and vulnerable households. Livelihood indicators measure livelihood security and borrow from experiences in sustainable livelihoods approaches to see whether current and future needs are being met (Spearman and McGay 2011).

An intervention often addresses more than one dimension, in order to ground it in broader development goals; and it is important to develop indicators that reflect the targeted dimensions. Classification by adaptation dimension can assist in indicator selection as it provides a framework to operationalize anticipated adaptation impacts or specific adaptation objectives.

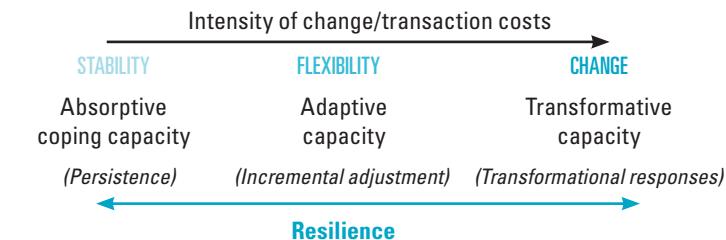
## Classification by Capacity

A second approach to categorizing adaptation interventions and related indicators is by the type of capacity envisaged to be built by the intervention (Béné et al. 2012; Berkes, Colding, and Folke 2003; Folke et al. 2010; Frankenberger et al. 2013b). This classification is useful for practitioners who are developing indicator sets as part of a longer-term resilience-focused theory of change, to visualize what point in the continuum indicators are measuring and how they relate to one another.

In this approach, there are three distinct capacity types needed for socioeconomic systems to build long-term resilience in a

changing climate. These capacities (figure 4.5) should be considered as intertwined, interconnected, and mutually reinforcing; they also exist at multiple levels (individual, household, community, state, ecosystem).

**FIGURE 4.5 Continuum of Absorptive Capacity, Adaptive Capacity, and Transformative Capacity**



SOURCE: Frankenberger et al. 2013b.

- **Absorptive capacity.** Absorptive capacity refers to the coping strategies of individuals, households, or communities to moderate or buffer the impacts of shocks on their livelihoods and basic needs. Absorptive capacity focuses on the ability to minimize exposure to shocks and stresses through preventive measures and appropriate coping strategies to avoid permanent, negative impacts.

- **Adaptive capacity.** Adaptive capacity refers to proactive and informed choices about alternative livelihood strategies based on an understanding of changing conditions. Adaptive capacity focuses on the ability to learn from experience and adjust responses to changing conditions, while continuing to operate.

- **Transformative capacity.** Transformative capacity encompasses the governance mechanisms, policies/regulations, infrastructure, community networks, and formal and informal

social protection mechanisms that constitute the enabling environment for systemic change. Transformative capacity focuses on how to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable.

Newer conceptual models emphasize the role of less tangible processes in building resilience—such as governance, decision-making, and innovation processes (Béné et al. 2012). The indicators selected should pay special attention not to what a system/community/population *has* that enables it to adapt, but what it *does* that enables it to adapt. Equally, indicators selected should pay attention to building those capacities instead of focusing

on the provision of services and items (Levine, Ludi, and Jones 2011; WRI 2009).

## 4.6 INDEXES AND COMPOSITE AND CORE INDICATORS

An *index* is an aggregation of multiple indicators that produce a single measure. In the past decade, many adaptation indexes have been created in response to policy developments and the need for organizations to understand vulnerability on a national level. These indexes monitor global and national-level vulnerability and readiness using a set of predefined indicators (usually a mix of qualitative and proxy indicators<sup>1</sup>) that are aggregated to provide a score or ranking of vulnerability. Of the existing indexes, those most frequently referred to are the [University of Notre Dame Global Adaptation Index](#) (ND-GAIN) (box 4.2), the [Climate Vulnerability Monitor](#), and the [Climate Change Vulnerability Index](#). Each institution managing them has made independent choices about the quality and nature of the indicators chosen and the data sets employed (reports, databases, censuses, etc.). All indexes acknowledge that even though there is a need to have indicators to measure national vulnerability, adaptation is first and foremost a local issue (Horrocks et al. 2012).

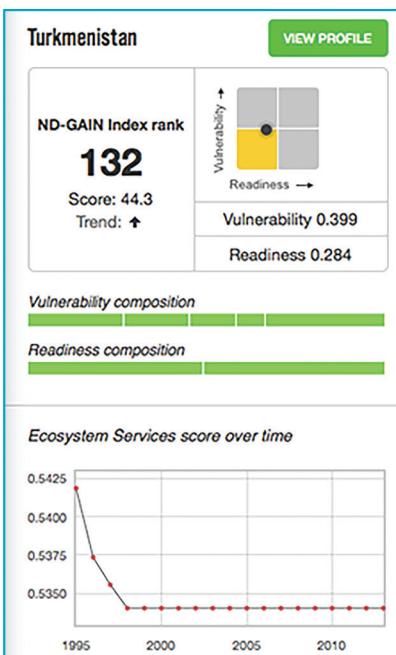
Indexes are not only applied at the national level but also at the project/program level, in which case an index can be comprised of a range of potential outcomes with scores or ratings. An index is comprised of

### BOX 4.2 Example of the ND-GAIN Index

The ND-GAIN Index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. It aims to help businesses and the public sector better prioritize investments for a more efficient response to the global challenges immediately ahead. A full overview of underlying indicators is available online as well as a vulnerability timeline by country from 1995 on.

The example to the right shows the ND-GAIN Index ranking for one country (Turkmenistan, 2014), with vulnerability and readiness figures, and ecosystems highlighted as one of five elements comprising the vulnerability figure.

SOURCE: <http://index.gain.org/>.



<sup>1</sup> Proxy indicators are often applied, in CCA M&E and elsewhere, when no data exist or are easily available. They are also used for highly complex parameters, as when using rainfall volume as a proxy indicator for precipitation or population density per x unit as an indicator for overpopulation. The validity of proxy indicators must be verified and approved by users and stakeholders (GIZ 2014).



a range of potential outcomes with scores or ratings. These scores are then used for project monitoring, to track the progress of a particular outcome and measure it against a baseline. The GEF's AMAT includes several indexes.

*Composite indicators*, like indexes, characterize vulnerability and/or adaptation through the collective measurement of multiple variables/indicators. While composite indicators and indexes are similar, indexes often have a base time or value (like a reference year, or an absolute minimum or maximum value) to be used for evaluation or monitoring over a period of time; whereas composite indicators have a reference point, such as a baseline starting point. A composite indicator “is formed when individual indicators are compiled into a single index on the basis of an underlying model” of the multidimensional concept that is being measured (OECD DAC 2008, 13). Both indexes and composite indicators capture multiple dimensions of a complex issue. By producing results in the form of scores or rankings, they make data and information more user friendly for decision makers.

Composite indicators and indexes are a useful tool to capture multiple variables that cannot be represented by one measurement. In the adaptation context, composite indicators can be developed and used to measure factors such as local adaptive capacity, which has many facets. These factors can be incorporated into a single composite measurement. For example, a CIF PPCR activity in Zambia defined composite indicators to monitor the project. One composite indicator was comprised of two separate metrics: (1) percentage of target councils, wards, and communities assessed as having developed incremental decision-making capacity; and (2) percentage of communities that applied climate information to adapt to climate change (Shitima 2014).

There are some observed drawbacks to using composite indicators/indexes for adaptation M&E. One is that they can mask the role of independent factors involved in an intervention; another is that they are developed for a specific purpose and are not easily scaled (National Climate Assessment 2011).

International funds typically identify a set of *core indicators* that should be used by all projects, wherever applicable, to help managers with the design of their projects. These core indicators are considered to be the key standardized indicators for a fund or implementing agency. For example, the CIF has identified the following set of five core indicators on which PPCR countries are required to report:

- Degree of integration of climate change in national, including sector, planning
- Evidence of strengthened government capacity and coordination mechanisms to mainstream climate resilience
- Quality and extent to which climate-responsive instruments/investment models are developed and tested
- Extent to which vulnerable households, communities, businesses, and public sector services use improved PPCR-supported tools, instruments, strategies, and activities to respond to climate variability or climate change
- Number of people supported by the PPCR to cope with the effects of climate change (CIF 2014b)

Core indicators are often used at the portfolio level where portfolio-wide indicators of success and measurements can be taken. Even though core indicators may be predefined, complementary bottom-up indicators may also be developed by local stakeholders and/or beneficiaries; these can capture more robust information



about what is happening on the ground. Predetermined core indicators should not prevent suitable indicators from being used from the bottom up (CDKN 2013). As an example, the CIF PPCR core indicators and scorecards are predetermined, but it is up to the project to set the targets

and give meaning to the scoring scales in a process of stakeholder participation (CIF 2014b). Moreover, recipients are able to create complementary project-specific core indicators (or measurements such as scorecards) that incorporate local knowledge and needs (CIF 2012).

## 4

### CHAPTER SUMMARY

- Indicators underpin an M&E system and provide information on change arising from interventions. They can be used as an accountability tool (measuring achievements and reporting on them), a management tool (tracking performance, providing data to steer interventions) and as a learning tool (providing evidence on what works and why).
- The most frequently used types of adaptation indicators—quantitative, qualitative, behavioral, economic, process, and output/outcome—do not differ from those found in development programming. Where they do differ is in how they are combined to measure contribution and impact.
- Indicators can be grouped into various classifications. The most common grouping in adaptation is based on a logical framework composed of output/outcome, process, and impact indicators.
- Emerging types of indicator classifications include those that focus on the dimension of the adaptation activity, and the capacities that foster true resilience.



PART III

# Good Practice Principles for Indicators



## CHAPTER 5

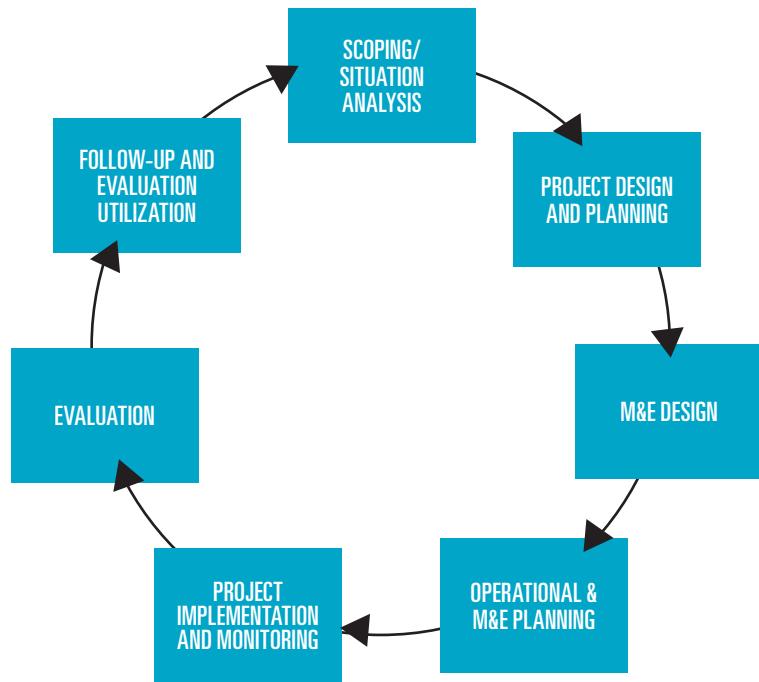
# Good Practice Principles in Selecting, Developing, and Using CCA Indicators

Much has been written about what constitutes a good indicator in the development sector. This chapter does not discuss what makes a good indicator in a generic sense, but looks at the principles that make a good indicator in the field of CCA M&E. In this context, the most important point to stress is that *there is no universal type of indicator or metric for CCA*. As Bours, McGinn, and Pringle (2014b, 4) assert:

There is no discreet [sic] set of CCA indicators per se, because adaptation is not an outcome in itself. Rather, adaptation programming seeks to enable economies, institutions, communities, and individuals to achieve development goals and decrease vulnerability to the adverse effects of a changing climate. Consequently, indicators for particular CCA projects, program, policies, and portfolios may not necessarily look much different from those for other development programmes. It is not the CCA indicators themselves that are unique, but whether the ones that are chosen combine into a suite that appropriately frames and assesses adaptation progress and resilience to climate change over time. Moreover, the complexities and uncertainties inherent in climate change...are better-served with a broader selection of indicators than is usually called for in more straightforward development interventions.

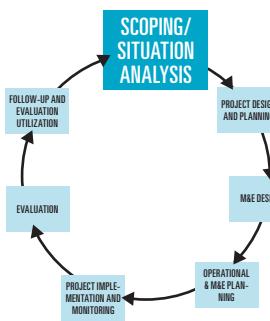
provides guidance to inform that process with principles categorized by their position in the project cycle, and poses questions in a series of tables correlated to each stage of the project cycle to help guide thinking toward implementation of these principles (figure 5.1). Although the questions are focused on projects, they can be used to guide thinking for programs as well.

**FIGURE 5.1 The Project Cycle**



How then to develop or select an appropriate suite of indicators? This chapter

## 5.1 GOOD PRACTICE PRINCIPLES: SCOPING



### Identify the Roles of Key Stakeholders in Indicator-Relevant Project Cycle Steps

The benefits of participatory processes are widely recognized, but not always followed, usually because of time and resource constraints. Nevertheless, stakeholder consultation and participation are strongly encouraged throughout.

Participation begins with a clear understanding of the stakeholders and their

anticipated involvement (table 5.1). Who participates in the next steps of the project cycle/M&E processes, and in what way, will vary according to the intervention's aims, anticipated M&E use, and the local context. For example, will key stakeholders take part in data collection? What is the value added of their inclusion? Will they need training to be part of these participatory elements? Other questions to reflect upon include: How are core concepts understood by key stakeholders? What are their thoughts on challenges such as maladaptation? Do they understand the value of a gender approach?

TABLE 5.1 Questions to Guide Indicator Development at the Scoping Phase

Question	Yes	No	If no:
Will key stakeholders take part in the project and M&E design?	<input type="checkbox"/>	<input type="checkbox"/>	Reflect on the value added of including key stakeholders in these processes. Explore additional ways of engaging with key stakeholders if approaches are not planned to be fully participatory.
Do key stakeholders share a common understanding of the core concepts underpinning the project?	<input type="checkbox"/>	<input type="checkbox"/>	It is important to find common ground on these concepts to guarantee key stakeholders' ownership/acceptance of the project and indicators.
Do key stakeholders understand what constitutes good adaptation and maladaptation?	<input type="checkbox"/>	<input type="checkbox"/>	Some capacity development might be needed to ensure a strong, sound and inclusive program strategy.
Do key stakeholders understand the importance of a gender approach?	<input type="checkbox"/>	<input type="checkbox"/>	

## 5.2 GOOD PRACTICE PRINCIPLES: PROJECT DESIGN AND PLANNING

### Inclusive Design of the Logframe and/or Theory of Change

While indicator development often takes place in the M&E design phase, the intervention's outputs, anticipated outcomes, and other logframe elements are developed in the project design and planning phase (table 5.2).

A critical perspective is needed on the linkages between the logframe and the overarching theory of change, and on the assumptions as to what successful adaptation looks like and the challenges and opportunities different stakeholders will encounter in reaching that goal. The best way to verify the correctness of these assumptions is in collaboration with those targeted by the intervention; these assumptions can be revisited once indicators are developed. Practitioners should also think about whether the M&E frame-



work would benefit from having disaggregated indicators that represent the different (vulnerable) groups targeted.

The choice of using a logframe or theory of change depends on the needs of the organization. However, there is a growing consensus that theory of change approaches are well suited to CCA. Such approaches link near-term endeavors to a big picture and are recommended for agencies addressing complex, long-term goals in a concrete and strategic way. Theory of change indicators differ in important ways from the more familiar logframe indicators. The key distinction is that the-

ory of change indicators represent milestones signifying that a specific point has been reached; these indicators are not necessarily tied to program outputs or targets and are therefore less useful for accountability purposes. However, a theory of change and a logframe can be used in complementary ways: for example, a theory of change can sketch out the overall big picture strategy, while a logframe can present the details of what a short-term program will achieve. Thus a theory of change “flexibly but rigorously bridges sectors, scales, timeframes in a way that links current projects to a larger strategy” (Bours, McGinn, and Pringle 2014d).

**TABLE 5.2 Questions to Guide Indicator Development during Project Design**

Question	Yes	No	If no:
Are stakeholders involved in the identification of core concepts in the project's design phase?	<input type="checkbox"/>	<input type="checkbox"/>	It is important to work with concepts that are embraced by your key stakeholders, because you will base your indicators on these concepts.
Is the potential for maladaptation reflected in the logframe and/or theory of change?	<input type="checkbox"/>	<input type="checkbox"/>	Early recognition of maladaptive outcomes will help to develop indicators sensitive to contextual challenges as well as the potential for maladaptation.
Will the project's underlying assumptions be demonstrated in the logframe and/or theory of change? How does this influence the selection, use and interpretation of indicators?	<input type="checkbox"/>	<input type="checkbox"/>	Revisit the assumptions in collaboration with the (vulnerable) groups targeted by the intervention to understand how the project is attempting to create outcomes.
Are these assumptions verified in collaboration with those targeted by the intervention?	<input type="checkbox"/>	<input type="checkbox"/>	

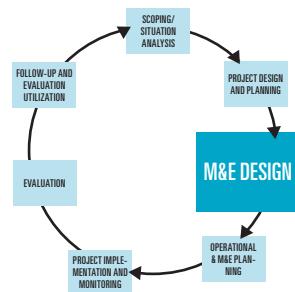
## 5.3 GOOD PRACTICE PRINCIPLES: M&E DESIGN

### Use Existing Indicator Criteria

Several well-known criteria or principles are employed by organizations to help guide the development of M&E systems and the selection of appropriate indicators. A few of these are highlighted here; [annex C](#) includes a more comprehensive discussion of various approaches and guidelines; table 5.3 summarizes guiding

questions in indicator development at this stage.

The SMART (**s**pecific, **m**easurable/**m**eaningful, **a**ssignable/**a**ttainable, **r**ealistic, and **t**ime-related) principles are the most familiar in international development (GEF 2010a; Horrocks et al. 2012; Sniffer 2012 et al.). Originally proposed as a tool to set clear management goals and objectives (Doran 1981), they have been widely adopted in the field of M&E and have been modified over the years by dif-



ferent organizations (box 5.1). As outlined by the GEF Independent Evaluation Office (GEF EO 2010), a SMART M&E system (including its indicators) has the following characteristics:

- ***Specific.*** The system captures the essence of the desired result by clearly and directly relating to the achievement of an objective and only that objective.
- ***Measurable.*** The monitoring system and indicators are unambiguously specified so that all parties agree on what they cover and there are practical ways to measure them.
- ***Achievable and attributable.*** The system identifies what changes are anticipated as a result of the intervention and whether the results are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
- ***Relevant and realistic.*** The system establishes levels of performance that

#### BOX 5.1 Difficulties in SMART Indicator Implementation

Although the SMART principles are widely recognized, their practical implementation is still problematic. For example, an evaluation of the Swedish government's Climate Change Initiative portfolio (Sida 2013) found that many projects were defining and using SMART indicators inappropriately. In many cases, projects were using targets rather than indicators—e.g., “25 percent of degraded land recovered,” rather than “number of acres of degraded land recovered.” In other instances, projects were using indicators that were vague and difficult to interpret, with broad and/or subjective terminology such as “improved quality of life” or “number of decision makers sensitized.” What does quality of life mean? What does it mean to be sensitized?

Similarly, an evaluation of the GEF SCCF portfolio highlighted that measurability and specificity were the two SMART criteria that were most often lacking. Many of the indicators used here too were vague; some even had no means of measurement (GEF EO 2012).

are likely to be achieved in a practical manner and that reflect the expectations of stakeholders.

- ***Time-bound, timely, trackable, and targeted.*** The system allows progress to be tracked in a cost-effective manner at the desired frequency for a set period, with clear identification of the particular stakeholder group(s) to be affected by the project or program.

Alternatively, Villanueva (2011) designed the ADAPT principles (discussed in chapter 3) as a more flexible, alternative approach to SMART indicators; these principles, which are listed below, are tailored specifically for CCA M&E.

- ***Adaptive learning and management:*** methodological flexibility and learning
- ***Dynamic:*** incorporating changes to baselines before, during, and after program implementation
- ***Active:*** with an understanding of underlying social, cultural, and behavioral factors and context
- ***Participatory:*** involving those affected at the local level
- ***Thorough:*** capturing the wider operational environment, using generic and specific indicators and indicators for maladaptation

Any of these criteria can serve as guidance for practitioners. It is up to each M&E professional, project team, and stakeholder group to choose which is best for them.

#### Combine and Complement Indicators

CCA M&E systems should include a balanced set of indicators and indicator types. CCA interventions are subject to uncertainties and complexities beyond those of more straightforward endeavors. There is



no set of universal adaptation indicators; individually, these indicators may be indistinguishable from those of other development programs and policies. What constitutes a good set of indicators depends on how well they capture an initiative's performance against its targets, and whether and how doing so contributes to long-term adaptation aims. Because of the long time horizons and complexities of adaptation aims, M&E systems would be expected to have a more diverse set of indicators (including a balance of qualitative, quantitative, outcome, and process indicators—see box 5.2) to capture the multifaceted nature of change (Lamhauge, Lanzi, and Agrawala 2011).

A mix of indicator types can be used and triangulated to present compelling evidence of progress toward adaptation (Frankel-Reed et al. 2009). Different indicators and indicator types should be seen as complementary. For instance, a quantitative outcome indicator such as "number of policy frameworks developed" might very well provide information as to whether this objective has been achieved, but it does not provide clues or insights on how change took place and how that change led to adaptive capacity. A process indicator would better capture the importance of the contribution toward the achievement of an outcome, and may provide lessons as to the underlying processes. Complementary indicators can be used to measure effective implementation as well as coverage. In the same example, "number of activities developed in response to the policy framework" or "number of households directly benefiting from the policy framework" might be used as complementary indicators to obtain a better picture of the intervention's impact (Lamhauge, Lanzi, and Agrawala 2011).

#### BOX 5.2 **Sida Climate Portfolio Review**

One of the main conclusions from a recent Sida evaluation was that projects need a mix of indicators to get a sense of whether a goal was attained. The review found that this was particularly true at the output level, where indicators should be both qualitative and quantitative. The study also concluded that indicator sets that measure processes should include at least one impact indicator to help project managers keep their goal/objective in mind.

SOURCE: Sida 2013.

### Find an Appropriate Balance in the Number of Indicators

The best M&E systems are useful, practical, and efficient. Choosing too many indicators can burden the agency and interfere with program implementation. Be mindful not to construct an M&E framework that is unwieldy. An appropriate balance of indicators does not necessarily mean a large number of them.

### Participatory Processes Should Be Used to Inform Indicator Selection

Planning processes are strongest when they are participatory and inclusive. Wide consultation with stakeholders can and should inform the indicator selection process. Doing so can (1) contribute to establishing the focus for the indicators, (2) clarify the methods of data collection and evaluation, (3) frame what success looks like according to beneficiaries, and (4) promote shared ownership and transparency. For projects that are defining process indicators as part of their M&E system, stakeholder involvement can bring a critical perspective on how to define appropriate steps toward the achievement of future outcomes (Sniffer 2012).

There are many examples of resources that help practitioners engage directly

with stakeholders to develop indicators for an adaptation M&E system. This is more often directed toward CBA than portfolio interventions. One recommended resource is CARE's PMERL manual (CARE 2014). It specifically includes guidance for collaboratively developing indicators with local stakeholders and accountability toward them.

### **Indicator Sets Should Integrate Gender**

Integrating gender in M&E and indicators is widely recognized as good practice across sustainable development. In terms of CCA, women are both disproportionately and differently affected by climate change compared to men.

Resources exist for practitioners on how best to develop gender indicators. For example, Diamond (2014) provides practical guidance on mainstreaming gender into CCA proposals, both in general and key sectors (urban CCA, energy, agriculture, etc.). Each of the sector modules includes a table of illustrative gender-sensitive CCA indicators. There are also many examples of organizations that have mainstreamed gender indicators into their M&E systems. UNDP programs and projects in disaster risk reduction include indicators to monitor and track progress on gender-specific targets (which are also included as separate target objectives/outcomes) (UNDP 2012). Another example can be found in the PPCR core indicators, which include gender considerations—e.g., whether females and males are equally participating in the coordination mechanism of a project and if the needs of both females and males are taken into account during design and implementation (CIF 2014a).

It is essential that policies, programs, and projects reflect the perspectives and prior-

ities of women. By doing so, these interventions will contribute to long-term sustainability and success for both men and women. Moreover, women have much to contribute and are powerful change agents in their own right.

### **Indicator Sets Should Capture the Wider Enabling Environment in Which Adaptation Takes Place**

CCA is affected by a diverse range of influences, many of which are external to the intervention itself. The M&E framework and concomitant indicators should be selected with an awareness of the overarching landscape. Villanueva (2011, 37) notes that “adaptation, constrained by the capacity to adapt, involves a further set of uncertainties in decision-making processes...the ability to manage shocks is a complex function of existing behavior, decision-making, and change.” None of these uncertainties are simple or straightforward to define and measure—especially across diverse social and economic contexts.

Indicators might be selected that track both program performance as well as the bigger picture. For example, an adaptation project that focuses on building adaptive capacity at the national level can include indicators that monitor specific outputs of the project, as well as indicators that monitor the intervention’s enabling environment. A good balance between environmental, economic, and social change indicators is recommended. In this regard, note that evaluators should be assessing those factors that enable and constrain adaptation—not simply demonstrate that outputs have been met. This assessment may require a greater focus on the overarching strategy than on program performance against targets.

**TABLE 5.3 Questions to Guide Indicator Development at the M&E Design Phase**

<b>Question</b>	<b>Yes</b>	<b>No</b>	<b>If no:</b>
Do the indicators follow a specific set of indicator development criteria (i.e., SMART, ADAPT, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	Choose the most appropriate criteria for the project/program and make sure that the indicators reflect these.
Is there an appropriate balance between process and outcome indicators, and between qualitative and quantitative indicators? Does the set of indicators reflect the aims of the intervention, and the aims of its M&E framework?	<input type="checkbox"/>	<input type="checkbox"/>	Determine if the mix of indicators will assess the results of the intervention and provide the information needed for learning and decision making. Is there a need to change the indicator mix?
Consider how the evaluation will, or could, be used to advance learning and build an evidence base. Do the indicators provide data that can easily be understood and interpreted? Will the information be useful for decision making, accountability, and adaptive learning?	<input type="checkbox"/>	<input type="checkbox"/>	Engage with the beneficiaries of the project and end users of the information to discuss the types of questions they seek to answer and the type of information or knowledge they need.
Is the number of indicators selected manageable, given expected time frames for reporting and resources available for indicator data collection and analysis?	<input type="checkbox"/>	<input type="checkbox"/>	Review whether all indicators selected are relevant, or if it is possible to exclude some without compromising the integrity of the overall data set.
Did relevant stakeholders participate in designing the M&E framework and indicators?	<input type="checkbox"/>	<input type="checkbox"/>	Participation should be mainstreamed into planning from the beginning. If it is not, explore whether and how to revise current plans and enact institutional policies to ensure better participation in the future.
Is there consensus between stakeholders on what the M&E framework will consist of (i.e., indicators, targets, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	Seek consensus with stakeholders (beneficiaries, local staff ,and other actors) so there is shared ownership of project outcomes.
Are indicators disaggregated (or designed) to monitor results for different populations (i.e., marginalized groups, women, children, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	Decide if disaggregation is important in the evaluation's use. If so, ensure that indicators reflect differing perspectives, interests, and adaptation pathways.
Refer to the intervention's theory of change or logframe model. Will the indicators help in understanding whether the objectives have been achieved?	<input type="checkbox"/>	<input type="checkbox"/>	Revisit the theory of change/logframe model and assess what information will highlight progress.
Do the indicators reflect the assumptions that have been made toward the intervention and its enabling environment?	<input type="checkbox"/>	<input type="checkbox"/>	Revisit the theory of change and its assumptions, and assess how to make the indicators more relevant toward the logic underpinning the intervention, taking into account the context and enabling environment.
Have indicators been included that capture the context/enabling environment in which the intervention is operating?	<input type="checkbox"/>	<input type="checkbox"/>	Develop indicators that track changes in the enabling environment; this should be part of the baseline.

## 5.4 GOOD PRACTICE PRINCIPLES: OPERATIONAL AND M&E PLANNING

### Data and Data Sources Supporting Indicators Should Be Sound

It is a given that strong and sound data are essential to a robust M&E system. Unfortunately, those who design such systems may not fully consider whether data are easily available and accessible, or how resource intensive—in terms of human and monetary resources—it will be to collect the data. Therefore, practical as well as methodological issues should be taken into account (table 5.4).

Overarching CCA processes occur over time horizons that go well beyond those of most interventions. Data needs and data baselines might change in the interim. CCA M&E systems should thus be designed with flexibility. A rigid framework will exclude emerging conditions that may be critical to long-term adaptation achievements: this should be avoided at all costs. Uncertainty is inherent in climate change, and evaluators should design M&E systems that can accommodate this uncertainty. This also requires institutional flexibility—e.g., a willingness to revisit strategies, aims, and indicators to reflect unanticipated changes over time.

**TABLE 5.4 Questions to Guide Indicator Development at the Operational and M&E Planning Phase**

Question	Yes	No	If no:
Are data availability and accessibility likely to change during the course of the project or after the project has been completed?	<input type="checkbox"/>	<input type="checkbox"/>	Develop a data collection contingency plan if data availability and sources might change; include that in the M&E framework.

## 5.5 GOOD PRACTICE PRINCIPLES: PROJECT IMPLEMENTATION AND MONITORING

### Participatory Data Collection and Analysis

Collecting and interpreting data can also be done in an inclusive manner. For example, the PPCR requires that implementing partners report against several specified core indicators. Although the indicators themselves are preset at the portfolio level, the process for scoring them can—and should—be done in an inclusive manner (CIF 2014a).

Programming needs to be sensitive to the fact that societies, communities, and

households are not homogeneous. Climate change will affect different people and groups in different ways, and they will have different adaptation responses. Interests, priorities, levels of power, capacities, and access to resources may vary dramatically. It is imperative to consider the different drivers of vulnerability and resilience, select indicators that reflect them, and have appropriate stakeholder groups participate in the data collection and analysis process (table 5.5).

### Provide Accompanying M&E Information When Appropriate

Clear definitions of indicators are essential to support data collection and analy-



sis; the literature is rife with examples of evaluation research that has been compromised by poorly defined, vague, or impractical indicators. Unambiguous definitions help project teams and evaluators

interpret clearly what the indicators are, and how to measure them correctly and consistently (see [annex D](#) for an example of indicator guidance sheets from the Adaptation Fund).

**TABLE 5.5 Questions to Guide Indicator Development during Project Implementation and Monitoring**

Question	Yes	No	If no:
Should data collection for indicators be done in an inclusive manner? If so, are data being collected inclusively and with the appropriate stakeholder groups?	<input type="checkbox"/>	<input type="checkbox"/>	Take a critical look at how data collection and interpretation can be done more inclusively. For CBA projects, the CARE CBA Toolkit is a good resource.
Are the data sources and collection methods for the indicators clear for evaluators and participating stakeholders?	<input type="checkbox"/>	<input type="checkbox"/>	If it is necessary to use specific data sources and/or collection methods for the project, include that in the operational design of the M&E system.
Are the indicators (and associated terminology) clear so that evaluators and participating stakeholders can easily interpret them?	<input type="checkbox"/>	<input type="checkbox"/>	Provide supporting information on how the terminology is defined by the project.

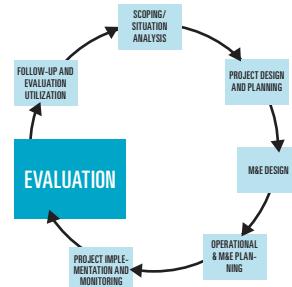
## 5.6 GOOD PRACTICE PRINCIPLES: EVALUATION

### Be Flexible, as Indicators Might Need to Change

Midcycle evaluations are an opportunity to adjust a program's strategy and M&E framework. Managers and evaluators should be aware that the indicators chosen for the project during the M&E design phase might need to change. This need reflects the nature of adaptation projects, which sometimes have to operate with

changing baselines. Evaluators should be attentive to such changes. Have the underlying baseline indicators changed? Have data sets changed?

As for final evaluations, evaluators might not always have the freedom to develop their own indicators, but they can pursue other lines of inquiry and reflect on whether the indicators were useful. Do the indicators that were originally chosen extract the critical information that is needed to perform the evaluation? If not, what other indicators should have been used?





## 5

CHAPTER  
SUMMARY

- Since the adaptation M&E field is both new and diverse, an evidence-based body of good practice is still emerging. The aim of this study—and this chapter in particular—is to advance current knowledge and practice.
- There is no single set of universal or standard adaptation indicators. Individually, they may be indistinguishable from indicators used in other development programs. Their one distinguishing characteristic is how a combination of indicators captures progress toward adaptation aims.
- Given the local contextualization of climate impacts, adaptation lends itself well for local stakeholder consultation and other participatory processes. These processes should focus on the development of the intervention, the logframe and theory of change, and M&E system; indicator development and selection; and data collection. This participatory approach helps to capture both the local context as well as the wider enabling environment.
- A good set of adaptation indicators should
  - be embedded in a theory of change that shows an understanding of and appreciation for the intervention's local context and wider enabling environment;
  - include a balance of different indicator types, but be manageable in total number of indicators;
- be informed by participatory processes and be understood and agreed upon by key stakeholders;
- reflect gender considerations beyond gender disaggregation with a focus on how women are differently affected and cope, including their different access to resources, capacities, and opportunities;
- be drawn from strong, sound data sources;
- provide data that can easily be converted into information and knowledge that suits the evaluation's use;
- follow established indicator criteria (e.g., SMART, ADAPT, CREAM, SPICED, etc.); and
- include indicators to track adaptive learning and (if applicable to the evaluation) feedback into policy.
- Good indicators are not carved in stone and are never a substitute for thoughtful analysis and interpretation. Given the dynamism and uncertainty as to how climate change will exactly play out at the local level, there needs to be a certain flexibility and openness to changing indicators developed at the start of the project when the actual climate reality changes.



PART IV

# Evaluation— Policy-Making Interface





## CHAPTER 6

# Good Practice Principles toward Better Evaluation Utilization in Policy Making

**B**uilding an evidence base to inform CCA policy making is becoming more and more critical as countries develop national adaptation plans and mainstream adaptation considerations into wider development policies and programs. A strong evidence base will heighten recognition of the issue and inform appropriate courses of action. This evidence “may include statistics, academic research, practice-generated impact evidence and ‘best-practice’ information” (UNDG 2005, 152). Perhaps the most positive outcome is that the utilization of evidence in adaptation policy can improve people’s capabilities, reduce vulnerabilities, and support overall human development by guiding policy choices to integrate ideas that have been proven to work.

Even though there is an agreement that M&E has an important role to play in informing the policy-making process, there is still a disconnect in the uptake of evaluative evidence in policy making (MacKay 2008). If fact, one of the original goals of this study was to share knowledge and best practices concerning the use of indicators in policy making for CCA. But the direct link between indicators and their role in evidence-based policy making is a thin one. Indicators provide the data and information base for evaluations, but it is the interpretation and critical analysis of that data that results in information and knowledge that needs to be harnessed for policy making or policy influencing.

Evidence-based policy making involves the use of evidence, rather than political will or agendas, to inform policy. It has been described as a “policy-making approach that helps planners make better-informed decisions by putting the best available evidence at the center of the policy process” (UNDG 2005, 152). It is based on the foundation that policy is able to produce better and more effective outcomes if it is informed by available evidence and sound analysis.<sup>1</sup>

**Evidence-based policy making involves the use of evidence, rather than political will or agendas, to inform policy.**

## 6.1 DIMENSIONS IN WHICH EVALUATION AS EVIDENCE IS USED IN THE POLICY PROCESS

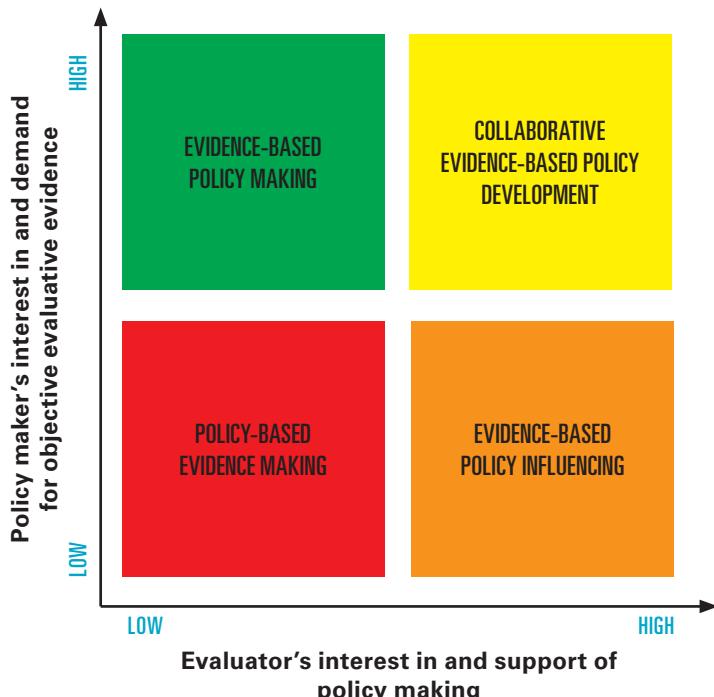
Evaluation has a role to play in providing evidence for what works and what does not to inform new policy ideas and policy development processes (World Bank 2009). This is as true in the field of CCA as it is in any other field where policies are developed. However, there is a gap in the utilization of evaluative evidence in policy making. How can evaluations be utilized, or be more influential, in policy mak-

<sup>1</sup> Evaluations are often narrow in scope, providing little room for evaluators to bridge findings into wider arenas such as policy processes or adaptive organizational change. This chapter speaks to those evaluations that are commissioned for policy purposes by policy groups, independent think tanks, or policy makers themselves.

ing? To better answer this question, it is imperative to understand the dimensions in which *evaluation as evidence* is used in the policy process, and the roles evaluators as well as policy makers play in this process. Figure 6.1 presents the specific roles and interests held by the evaluator and the policy maker; the corresponding dimensions are discussed below.

Policy makers have an interest in seeing that the evaluation supports their policy goal, their interest in acquiring objective evaluative evidence is low. Similarly, an evaluator has little interest in supporting the policy-making process. The key challenge to M&E professionals in these circumstances is to stay objective and relevant, without pandering to the policy maker.

**FIGURE 6.1 The Evaluator–Policy Maker Interface**



SOURCE: Bours 2014a.

### Policy-Based Evidence Making

Policy makers, at times, seek evidence that supports a predetermined policy strategy or policy decision; this dimension can be called policy-based evidence making. Research and evaluation is commissioned with the tacit understanding that the evidence base will be used to support a policy that has already been decided. Since pol-

### Evidence-Based Policy Making

As previously discussed, evidence-based policy making occurs when objective information (e.g., rigorous analysis, evaluation, studies, etc.) is used to guide the policy-making process. In this situation, the evaluator has a low level of interest in supporting policy making. An evaluator might produce a robust evaluation, but the support of translating that evaluation into policy stops there. The evaluator does not actively support the policy-making process. Alternatively, the policy maker has a high level of interest in obtaining evaluation information to guide a policy decision. Because their interests are different, the evaluator (and evaluation) and policy maker are not fully engaged.

### Evidence-Based Policy Influencing

Evidence-based policy influencing conceptually varies slightly from evidence-based policy making in the sense that the evidence here helps set policy *goals* and policy *direction*. It is a tool to influence the direction of strategy and higher-level goal setting as opposed to making the policy that implements those goals. Here, an evaluator might have a preconceived notion of how the evaluation is to influence policy, informed by key stakeholders who commission the evaluation. The evaluator has a high level of interest in supporting (and influencing) the policy process, while the policy maker has a low level of interest in the evaluation.



## Collaborative Evidence-Based Policy Development

Collaborative evidence-based policy development refers to contexts in which both the evaluator and the policy maker assume an equal interest in supporting evaluations as evidence in the policy process. Although the evaluation is demand driven (much like in policy-based evidence making), the difference is that the evaluation is commissioned before a policy direction is determined. The policy maker is in need of unbiased, impartial evidence to help make a policy decision. In this dimension, the evaluator's role goes beyond providing information and evaluation to also supporting steps in the policy process. As a key actor in building evidence-based policy, the evaluator can inform a policy scoping process, identify a successful approach, and monitor the policy's implementation. This dimension represents the healthiest relationship between policy making and evaluative evidence; it is also the dimension where both policy makers and evaluators have an equal and shared role to play in shaping effective policy decisions.

A keen understanding of the roles and influence that both policy makers and evaluators have in shaping good, effective, and meaningful evidence-based policies is necessary for governments to make solid policy decisions toward CCA. Evaluation has for a long time been considered an informative tool in the policy process, but quality evaluations that lack strong policy direction and support do not aid the policy development process. It is not just evaluators who can bridge the gap between evidence use and policy making; it is also the role of the policy maker to engage with evaluators to determine the best course of action.

## 6.2 GOOD PRACTICE PRINCIPLES

Good practice principles can help guide the uptake of evaluation use in policy making. These principles are not unique to CCA programming, and can be applied in the general field of development as well. The principles presented here are grouped into three categories, as per Bours (2014b):

- Provide ownership and participation opportunities
- Ensure effective communication and follow-up
- Understand political processes and design inclusively

In practice, evaluators are often given narrow M&E assignments for which they have to report on specific outcomes and successes; rarely do they have a mandate to connect evaluation findings to larger policy goals or agendas. Therefore, many of these good practice principles also apply to actors that serve as a link between the work evaluators produce and the policy makers who seek to benefit from those findings.

**A keen understanding of the roles and influence that both policy makers and evaluators have in shaping good, effective, and meaningful evidence-based policies is necessary for governments to make solid policy decisions toward CCA.**

### Provide Ownership and Participation Opportunities

Providing a sense of ownership of the evaluation to policy makers is essential. Evaluators can engage with policy makers from the onset of an evaluation process. This way policy makers are aware of the evaluation taking place and can be mindful of its relevance to upcoming policy decisions. By using formative evaluation strategies such as continual feedback, participation can also provide direction to evaluators on what type of information is seen as being useful to policy makers at a given moment. This knowledge can better position the information arising out of

the evaluation for use in informed policy development.

While giving a sense of ownership is important, it should not influence an evaluator or evaluation from providing independent and nonpartisan judgment. Evaluators should always be cognizant of remaining independent, and should aim to provide balanced evaluative evidence when conducting assessments.

### Ensure Effective Communication and Follow-Up

Effective communication and continued follow-up with policy makers can encourage and enhance uptake. Effective communication involves both communication style and communication outreach. Evaluations often have technical jargon that is industry specific, or complex language that is difficult for nonspecialists to understand. Making communication materials from evaluations more approachable and clear in language, as well as more accessible and available (perhaps through online policy forums, websites, direct mailings, etc.), to a policy audience is an important step in good outreach and dissemination.

Following up with policy makers on specific findings and recommendations from evaluations may also keep evaluative evidence on the agenda. Evaluators can provide support to policy makers if they need more information or guidance in the future on a specific topic or program. They can serve as information brokers if new policy is being created or existing policy is being modified. The evaluator could also support the process of developing an action

plan on next steps in the policy-making process—such as the development of measurable goals, or building a roadmap with policy implementation targets.

### Understand Political Processes and Design Inclusively

A sound understanding of the political context and policy formulation process helps evaluators and evaluation practitioners know how and when evaluation information can be used. Knowing how a national policy is developed, for example, can help target evaluation information to the right audience. Policy recommendations from an evaluation will look different if a policy is developed through an interministerial process or within a small, technical division of a ministry. Additionally, outreach should be timed to position evaluative information so that it has a better chance of being used.

When possible, policy makers should be given a chance to participate in the evaluation's design phase, which includes the M&E methodology and indicator development. Designing inclusively alongside policy makers can help to ensure the M&E approach and indicators take into account the wider context in which they can be used. Policy makers might be interested in adding complementary indicators that are used in the M&E of other national development programs or that can be mainstreamed into other initiatives (such as national adaptation programs of action, national adaptation plans, and sustainable development goals). Including policy makers as active participants in the design phase of an evaluation can help make evaluation findings more relevant.

**6**  
**CHAPTER  
SUMMARY**

- Evaluative evidence remains underutilized in policy making.
- The direct link between indicators and their role in evidence-based policy making is a thin one, although indicator data feed into the knowledge needed to inform policy-making or policy-influencing processes.
- Evaluations with no specific policy-making aim should still consider their policy-making relevance and, if relevant, provide reflection on how the evaluation's findings can inform policy making.
- The type of evaluator–policy maker relation influences the level of interest in one another's field of work and output, which in turn influences the level of uptake of objective evaluative evidence in the policy-making process.
- Collaborative evidence-based policy development is the healthiest relationship, with both evaluator and policy maker assuming an equal interest in supporting evaluations as evidence in the policy-making process. The difference between this and evidence-based policy mak-

ing is that the evaluator's role goes beyond providing evaluative information to also assuming responsibility for actively supporting different steps in the policy process.

- Applying good practice principles for evaluation utilization in policy making can both demonstrate and enhance the value and application of evaluative evidence in effective policy-making processes.
- Good practice principles for supporting evaluation utilization in policy making include the following:
  - Provide a sense of ownership for policy makers, and create opportunities for them to participate in evaluation processes while remaining objective and independent.
  - Create communication that is comprehensible and obtainable by a policy audience. Support policy makers as an information broker in the further interpretation of evaluative evidence.
  - Design inclusively with an understanding of the political and policy development processes.





## CHAPTER 7

# Conclusions

CA M&E has a central role to play in shaping the future of adaptation planning, activities, and policy. M&E can be a powerful tool for observing what works in adaptation. Those lessons can help orient the strategic direction of adaptation funding/development assistance, and can be integrated into national action plans and shared directly with beneficiaries.

This study's objective was to identify and address key challenges for CCA M&E, with a focus on indicator development, selection, and use; as well as to explore the uptake of evaluative evidence in policy making. The study first looked at the current discourse in CCA M&E. It finds that CCA M&E is not an entirely new field, but has been built on the lessons in development programming. The M&E challenges are largely similar to those found in development and other sectors; some are quite specific to the field of adaptation. *Notable challenges specific to adaptation practitioners* are difficulties creating M&E systems that cover long temporal and spatial scales, the attribution gap, lack of conceptual clarity on adaptation terminology, the uncertainty of climate change and climate variation, dealing with counterfactual scenarios, and mitigating maladaptation. These challenges should be reviewed at the start of CCA programming and M&E design.

As this study has shown, the most commonly used adaptation M&E frameworks use indicators differently. Indicators are tailored to the M&E frameworks' pur-

pose. Multilateral funds and development agencies use top-down frameworks which include more quantifiable indicators, predetermined core indicators, and scorecards that can be easily aggregated. Interventions that focus on CBA use bottom-up M&E frameworks, participatory engagement, and qualitative indicators. As the CCA M&E field advances, more and more M&E frameworks are taking a two-tier approach, in which top-down and bottom-up approaches (including indicators) mutually reinforce one another.

The study also finds that adaptation indicator types and classifications do not differ from those found in the wider development field (i.e., quantitative, qualitative, behavioral, economic, process, and output/outcome). Emerging indicator categories for adaptation are focusing on how to define and measure dimensions of resilience, adaptation, and capabilities. Inevitably, as research and lessons are shared, these new categories will have more prominence in the CCA M&E field.

One of the main conclusions of the study is that there is no single set of universal or standard adaptation indicators. Providing examples of indicators that can be useful in adaptation programming will not contribute to advancing the field. Thus, *good practice principles for selecting, developing, and using CCA indicators* have been proposed. They are a set of principles that adaptation experts can use practically in their own work. Note that good indicators should never be considered the only input for solid analysis or evaluation. Indicators

**There is no single set of universal or standard adaptation indicators. Providing examples of indicators that can be useful in adaptation programming will not contribute to advancing the field.**



**Collaborative evidence-based policy development is the most effective relationship, with both evaluator and policy maker assuming an equal interest in supporting evaluations as evidence in the policy-making process.**

can only provide so many clues; the data arising from the indicators should always be supplemented by thorough analysis and interpretation.

Another conclusion is that the direct link between indicators and their role in evidence-based policy making in adaptation is a thin one. There are few or no examples of adaptation policy making that has been guided by indicators per se. The data from indicators are channeled into the overall knowledge base that is needed to inform policy making. Additionally, there is a practice gap in using evaluative evidence to inform policy making. *Collaborative evidence-based policy development* is the most effective relationship, with both evaluator and policy maker assuming an equal interest in supporting evaluations as evidence in the policy-making process.

To support the further use of evaluation in adaptation policy making, the study presents *good practice principles for supporting evaluation utilization in policy making*. These principles overall recognize that it is not just evaluators who can bridge the evaluation–policy making gap but that it is also the role of the policy maker to engage with evaluators to determine the best course of action.

## 7.1 TOWARD BETTER PRACTICE IN CCA M&E

CCA M&E is a maturing field; innovations provide evidence of successful adaptation and influence good practice. While existing M&E frameworks have made a positive contribution to the continued growth of the evidence base, most have been developed with a specific organizational focus in mind. Despite recent advances in CCA M&E, there remains a need to reconcile knowledge and practice gaps. Examples of such gaps include the following:

- Inconsistent use of and disagreement on key terminology
- Limited “adventurousness” regarding the grouping, use, or piloting of adaptation-specific indicators (i.e., an overdependence on indicators used in development programming at the expense of adaptation-specific indicators; more innovative types of indicators—such as those that focus on adaptation dimensions and capacities—might be better suited to the adaptation context)
- A lack of clear guidance for indicator development and selection in existing adaptation M&E frameworks (i.e., most frameworks do not go beyond broad assumptions when discussing the process of indicator development)
- Continued underutilization of evaluative evidence

At times, the challenges of monitoring and evaluating a field as complex as adaptation might be discouraging. But these challenges reflect an opportunity for leading-edge advances in and the further refinement of adaptation M&E tools and approaches. Such enhancements are crucial to contend with a changing world, and communities of practice such as Climate-Eval have an important role to play in the sharing and dissemination of lessons learned.

## 7.2 ADDRESSING M&E CHALLENGES

The ability *to attribute* changes in outcomes of interest to a specific intervention is important in any evaluation context. However, time and resources spent on trying to attribute change should be proportionate to the size of the intervention. CCA interventions are characterized by a complex range of climatic as well as socio-economic and environmental influences



that could explain the changes experienced. Rather than focus on attribution, it is often better to focus on an intervention's contribution to addressing climate change impacts.

Unintended and unforeseen consequences are difficult to anticipate and capture with predetermined indicators. The likelihood of *maladaptation* can be decreased by making sure those most vulnerable to climate impacts are targeted, beneficiaries agree on both method and measurement of the intervention's success, and qualitative data collection and analysis also focus on broader sustainable development conditions.

*Counterfactuals* are challenging against the complex backdrop of climate uncertainty and varying temporal and spatial scales. In the adaptation context, counterfactuals are not only used to measure the "what if" in the absence of an intervention, but also to measure the success of an intervention in the absence of shocks and stresses.

*Qualitative analysis* is essential in capturing (local) knowledge regarding likely impacts of shocks and stresses for establishing counterfactual scenarios in the absence of those shocks and stresses. Assessing the development of assets and capacities needed to resist and respond to what could happen in the future is another way of looking at counterfactual analysis. However, climatic variation is not the only long-term factor; social, economic, and environmental factors are also part of the wider enabling environment and should be taken into account. At times, holding steady rather than improving local conditions may constitute success if local climatic conditions themselves are rapidly deteriorating.

*Terminology* is not used consistently within and between different organizations. All key stakeholders involved in an intervention must share a common understanding of terms and concepts. Getting to a consensus on working definitions is more important than adopting the latest conceptual definitions.

## 7.3 DEVELOPING INDICATOR SETS THAT WORK

Rather than citing example indicators, this study outlines general approaches and specific principles to encourage readers to develop indicators tailored to their unique needs. There are no universal metrics or indicators for adaptation. While climate change is a global phenomenon, adaptation is fundamentally local, and it is best to select indicators that reflect the specific scale and context at hand.

Given the local manifestations of climate change impacts, adaptation lends itself well for local stakeholder consultation and other forms of participatory engagement. This engagement should include the processes of indicator development and selection, and data collection to capture both the local context and the wider enabling environment. The local climate system is dynamic, and there is uncertainty about how climate change will manifest itself at the local level; consequently, there needs to be flexibility and openness to changing indicators developed at the start of the project as the climate reality changes over time.

Due to the complexities, interconnectedness, and uncertainty inherent in climate change impacts and related adaptation interventions, CCA M&E should always contain a learning component to inform future interventions and to further mature the evidence base.

**CCA M&E should  
always contain a  
learning component  
to inform future inter-  
ventions and to fur-  
ther mature the evi-  
dence base.**



## 7.4 SUPPORTING EVIDENCE-INFORMED POLICY DEVELOPMENT

The direct link between indicators and policy development is perhaps a thin one, but indicator data feed into the knowledge needed to inform policy-making or policy-influencing processes. Thus, policy will be more effective and successful when informed by available evidence and sound analysis. Evaluation has a key role to play, but remains underutilized.

Collaborative evidence-based policy development is the preferred evaluator–policy-maker relationship (as discussed in [chapter 6](#)), with both evaluator and policy maker assuming an equal interest in supporting evaluations as evidence in the policy process. A prerequisite here is that not only should evaluators focus on how to involve policy makers in the evaluation

process, but policy makers should equally aim to gather support from evaluators in the policy-making process.

National-level M&E systems are new, and specific climate change M&E systems at the national level are even more a novelty. The United Kingdom is currently the only country that has a committee on climate change that independently assesses the government’s progress on CCA and reports to parliament on this. The experiences of the United Kingdom and other countries (such as the Philippines, which is currently developing a similar M&E system) are critical in advancing adaptive learning and evidence-informed policy development.

Finally, evaluations with no specific policy-making aim should still consider relevance in policy making, and the evaluator should reflect on how the evaluation’s findings can inform policy making.



# Annexes





## ANNEX A

# Terminology Note: Measure, Indicator, and Metric

Definitions of the terms “measure,” “indicator,” and “metric” vary across agencies and these terms are often used interchangeably, although there are subtle differences between them. It is useful to check in advance how these terms are used within different contexts.

A *measure* is a value that is quantified against a standard. A project implementer wants to know that the total urban green space being developed is 250 acres in size. “Acres” is the standard, and all can see and agree on the size involved.

An urban planner, on the other hand, wants to know that the urban green space developed supports a city’s growth by 22,780 inhabitants (calculated based on 500 square feet of urban green space per new inhabitant). The number “22,780 inhabitants” is an indicator of size for the green space, but not a measure because it does not adhere to a universally agreed-upon standard.

An *indicator* is “A quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect changes connected to an intervention, or to help assess the performance of a development actor” (OECD 2002, 25). Or, according to the definition adopted by USAID, an indicator is “A quantitative or qualitative variable that provides reliable means to measure a particular phenomenon or attribute” (USAID 2009, 6).

Whether a “measure” or an “indicator” is more useful depends on individual perspective. To the project implementer, the standard measure of 250 acres is most useful. Knowing the number of new inhabitants this space will serve does not matter when ordering trees and grass seed. Conversely, the specific measure does not matter to the urban planner, who wants to know the number of new inhabitants the space will support.

An objective measure must serve a purpose and use. It must accurately measure what stakeholders want to know. An indicator gets close to, and approximates the qualities of, a standard, but is not necessarily an agreed-upon standard. Especially in CCA, there are not many agreed-to universal standards; consequently, measures of success will often be indicators.

Finally, a *metric* is a calculated or composite measure or quantitative indicator based upon two or more indicators or measures. Metrics help put a variable in relation to one or more other dimensions.

What does the size of 250 acres connote? Is that a lot of urban green space? And is 500 square feet of green space per inhabitant a good deal? “Yearly growth in urban green space for 2005–15” would be a metric. “Urban green space per inhabitant for the 10 largest U.S. cities” is also a metric.



## ANNEX B

## Overview of Commonly Used CCA M&E Frameworks

Framework	Source	Description	M&E focus		
			CBA	Portfolio	Policy
UNDP CCA M&E Framework	UNDP (2007)	<ul style="list-style-type: none"><li>Developed to fulfill LDCF/SCCF mandates</li><li>Organized according to six thematic areas</li><li>Intended to guide UNDP staff in design of M&amp;E frameworks for adaptation initiatives</li></ul>	X	X	
<i>Making Adaptation Count</i>	Spearman and McGray (2011); World Resources Institute; GIZ	<ul style="list-style-type: none"><li>Step-by-step decision-making process and conceptual adaptation dimension framework for developing CCA M&amp;E systems</li><li>Gives indicator examples for each type of adaptation dimension—adaptive capacity, adaptive action, sustained development</li></ul>	X	X	
<i>Learning to ADAPT</i>	Villanueva (2011)	<ul style="list-style-type: none"><li>Manual on M&amp;E for CCA</li><li>ADAPT principles are proposed to help guide development of M&amp;E systems, including indicators</li></ul>	X	X	X
<i>Adaptation Fund Results Framework and Baseline Guidance: Project-level</i>	AF (2011)	<ul style="list-style-type: none"><li>Helps actual and potential Adaptation Fund implementing agencies design program baselines and logical results frameworks</li><li>Clarifies core indicators and provides guidance on how to measure them and what the data sources should be</li></ul>		X	
UKCIP AdaptME Toolkit	Pringle (2011); UKCIP	<ul style="list-style-type: none"><li>Guidance toolkit</li><li>Provides a series of questions to help reader reflect on critical elements of adaptation M&amp;E</li></ul>	X	X	
AMAT	GEF (2012)	<ul style="list-style-type: none"><li>Designed for GEF Agencies to measure results at the LDCF/SCCF portfolio level</li><li>Intended as a tool to enable the GEF to track and examine common indicators over time to assess progress and identify measurable achievements for the LDCF/SCCF</li></ul>		X	
<i>Adaptation Made to Measure</i>	Olivier, Leiter, and Linke (2013); GIZ	<ul style="list-style-type: none"><li>Provides an overview of basic definitions, concepts, and uncertainties of—and challenges to—the M&amp;E of adaptation interventions</li><li>Includes a step-by-step framework for developing an M&amp;E system, adapted from Spearman and McGray (2011)</li></ul>	X	X	



Framework	Source	Description	M&E focus		
			CBA	Portfolio	Policy
TAMD Framework	Brooks et al. (2011, 2013); International Institute for Environment and Development	<ul style="list-style-type: none"> <li>● Twin-track framework that assesses the effectiveness of CCA interventions</li> <li>● Emphasizes that development interventions that are not necessarily climate focused should use TAMD to assess interventions in light of changing climate</li> </ul>	X	X	X
TANGO Resilience Assessment Framework	Frankenberger et al. (2012); FAO; World Food Programme	<ul style="list-style-type: none"> <li>● Designed to help practitioners develop and evaluate interventions that target resilience and build capacities to manage risk</li> <li>● Regional emphasis on Africa; thematic focus on livelihoods, disaster risk reduction, and food security</li> </ul>	X	X	
IISD Climate Resilience and Food Security Framework	Tyler et al. (2013); IISD	<ul style="list-style-type: none"> <li>● Helps users analyze and strengthen the food security of vulnerable populations</li> <li>● Working paper (Tyler et al. 2013) explores approaches to monitoring food system resilience in a changing climate and presents a conceptual tool to assess food systems over the long term</li> </ul>	X	X	X
PROVIA	PROVIA; Hinkel et al. (2013a, 2013b)	<ul style="list-style-type: none"> <li>● Has produced a series of guidance materials aimed at providing direction at the global and national levels on vulnerability, climate impacts, and adaptation</li> <li>● Materials include an overview of other tools and M&amp;E</li> </ul>		X	X
PPCR	CIF (2012, 2013a, 2013b, 2014a, 2014b)	<ul style="list-style-type: none"> <li>● Collection of documents comprise the PPCR Monitoring and Reporting Toolkit, which support PPCR projects and governments in monitoring results</li> <li>● Tools include logical models and indicator guidance for the core PPCR indicators</li> </ul>		X	X
CoBRA	UNDP (2014a, b,c)	<ul style="list-style-type: none"> <li>● Helps measure and identify the key building blocks of community resilience characteristics to assist drought and disaster risk reduction programs at the local level</li> </ul>	X		
PMERL	CARE; Rossing et al. (2012); CARE (2014)	<ul style="list-style-type: none"> <li>● PMERL manual (Rossing et al. 2012) includes a participatory methodology for M&amp;E and learning and reflection strategies</li> <li>● Manual includes a series of steps in the PMERL process, and useful guidance on critical choices made in an M&amp;E system, such as evaluating trade-offs in design choices for participatory M&amp;E and the development of locally specific indicators</li> </ul>	X		

NOTE: FAO = Food and Agriculture Organization of the United Nations.



## ANNEX C

## Indicator Selection Criteria

Criteria	Description	Background and application
SMART	SMART principles began as a management tool, but have emerged as best practice for developing M&E indicators and the M&E system. They are the most referred-to set of criteria in CCA M&E.	<ul style="list-style-type: none"><li>● <b>Specific.</b> The system captures the essence of the desired result by clearly and directly relating to the achievement of an objective and only that objective.</li><li>● <b>Measurable.</b> The monitoring system and indicators are unambiguously specified so that all parties agree on what they cover and there are practical ways to measure them.</li><li>● <b>Achievable and attributable.</b> The system identifies what changes are anticipated as a result of the intervention and whether the results are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.</li><li>● <b>Relevant and realistic.</b> The system establishes levels of performance that are likely to be achieved in a practical manner and that reflect the expectations of stakeholders.</li><li>● <b>Time-bound, timely, trackable, and targeted.</b> The system allows progress to be tracked in a cost-effective manner at the desired frequency for a set period, with clear identification of the particular stakeholder group(s) to be affected by the project or program (GEF EO 2010).</li></ul>
ADAPT	Villanueva (2011) proposes ADAPT principles as a more flexible, alternative approach to SMART indicators that is more conducive for climate change adaptation programming. ADAPT principles reflect the larger perspective that M&E should contribute to building an understanding of adaptation that is evidence based, and that M&E should depart from an understanding of the underlying processes in support of successful adaptation project/program implementation.	<ul style="list-style-type: none"><li>● <b>Adaptive:</b> flexible</li><li>● <b>Dynamic:</b> incorporating changes to baselines before, during, and after program implementation</li><li>● <b>Active:</b> incorporating underlying social/cultural contexts</li><li>● <b>Participatory:</b> involving those affected</li><li>● <b>Thorough:</b> capturing the wider operational environment, using generic and specific indicators, and indicators for mal-adaptation</li></ul>



Criteria	Description	Background and application
CREAM	<p>CREAM principles are used to select good performance indicators (Schiavo-Campo 1999). The CREAM approach is useful for practitioners constructing project M&amp;E systems that are results based and whose purpose is to monitor and evaluate the specific performance and outcomes of a project (World Bank 2004).</p>	<ul style="list-style-type: none"> <li>● <b>Clear:</b> indicators should be precise</li> <li>● <b>Relevant:</b> appropriate to the subject and evaluation</li> <li>● <b>Economic:</b> can be obtained at a reasonable cost</li> <li>● <b>Adequate:</b> the ability to provide sufficient information on performance</li> <li>● <b>Monitorable:</b> easily monitored and amenable to independent validation</li> </ul>
SPICED	<p>The SPICED principles focus on how indicators should be used rather than on how they should be developed. These criteria emphasize indicators that are used to incite change (such as in impact assessments for development agencies) (Roche 1999).</p>	<ul style="list-style-type: none"> <li>● <b>Subjective.</b> Key informants (beneficiaries/stakeholders) have a special position or experience that gives them unique insights, which may yield high returns in terms of time. What may be seen by some as anecdotal evidence becomes critical data because of the source's value.</li> <li>● <b>Participatory.</b> Indicators should be developed together with those best placed to assess them—i.e., with the project's ultimate beneficiaries, local staff, and other stakeholders.</li> <li>● <b>Interpreted and communicable.</b> Locally defined indicators may not mean much to others; thus, they need to be explained or interpreted to different stakeholders.</li> <li>● <b>Cross-checked and compared.</b> The validity of indicators needs to be cross-checked by comparing different indicators and progress, and by using different stakeholders and methods to ensure validity.</li> <li>● <b>Empowering.</b> The process of developing and accessing indicators should be empowering in itself and should allow stakeholders to reflect critically on their changing situation.</li> <li>● <b>Diverse and disaggregated.</b> There should be a deliberate effort to seek out different indicators from a range of groups and across genders. The data need to be recorded so that these differences can be assessed over time.</li> </ul>
FABRIC	<p>The FABRIC criteria set the property of performance information that would be derived from the selected indicators (UK National Audit Office 2001).</p>	<ul style="list-style-type: none"> <li>● <b>Focused</b> on the organization's (or program's) aims and objectives</li> <li>● <b>Appropriate</b> to, and useful for, the stakeholders who are likely to use it</li> <li>● <b>Balanced</b> in giving a picture of what the organization (or program) is doing, and covering all significant areas of work</li> <li>● <b>Robust</b> in order to withstand organizational or personnel changes</li> <li>● <b>Integrated</b> into the organization, as part of the business planning and management processes</li> <li>● <b>Cost-effective</b> in balancing the benefits of gathering the information against the costs</li> </ul>



Criteria	Description	Background and application
USAID indicator criteria	USAID (2010) has identified these seven key criteria to guide the selection of performance indicators for monitoring and evaluating projects; they provide guidance for USAID M&E experts.	<ul style="list-style-type: none"> <li>● <b>Direct.</b> Indicator clearly measures a result.</li> <li>● <b>Objective.</b> Indicator is unambiguous about data source and data collection methodology.</li> <li>● <b>Useful for management.</b> Indicator is meaningful for adaptive management.</li> <li>● <b>Attributable.</b> Indicator is clearly associated with USAID interventions.</li> <li>● <b>Practical.</b> Data are collected economically and in a timely manner.</li> <li>● <b>Adequate.</b> Indicator should be sufficient to measure a clear result.</li> <li>● <b>Disaggregated.</b> Data should be disaggregated to provide more than one result dimension.</li> </ul>
Canadian International Development Agency criteria	The Canadian International Development Agency has developed good indicator guidance for all its projects. These criteria have been illustrated with questions specific to climate change adaptation (Spearman and McGay 2011).	<ul style="list-style-type: none"> <li>● <b>Validity.</b> Does the indicator measure a change in climate risk or vulnerability?</li> <li>● <b>Precise meaning.</b> Do stakeholders agree on exactly what the indicator measures in this context?</li> <li>● <b>Practical, affordable, and simple.</b> Are climate- and adaptation-relevant data actually available at reasonable cost and effort? Will it be easy to collect and analyze information?</li> <li>● <b>Reliability.</b> Can the indicator be consistently measured against the adaptation baseline over the short, medium, and long term?</li> <li>● <b>Sensitivity.</b> When the respective climatic effects or adaptive behaviors change, is the indicator susceptible to those changes?</li> <li>● <b>Clear direction.</b> Are we sure whether an increase in value is good or bad and for which adaptation dimensions?</li> <li>● <b>Utility.</b> Will the information collected be useful for adaptive management, results accountability, and learning?</li> <li>● <b>Owned.</b> Do stakeholders agree that this indicator makes sense for testing the adaptation hypothesis?</li> </ul>
	The Sniffer (2012) report gathered experts to discuss the best approach to the development of indicators and what practices would best guide their development. The experts agreed on two principles to help formulate an indicator framework.	<ul style="list-style-type: none"> <li>● <b>Agree and focus.</b> Stakeholders define and agree on adaptation goals and aims (this sets the foundation for developing indicators that help track progress toward achieving these goals).</li> <li>● <b>Secure and legitimize implementation.</b> Define responsibilities for who/what entity will develop, implement, and maintain indicators.</li> </ul>

**SOURCES:** GEF EO 2010; Roche 1999; Schiavo-Campo 1999; Sniffer 2012; Spearman and McGay 2011; UK National Audit Office 2001; USAID 2010; Villanueva 2011; World Bank 2004.



## ANNEX D

# Indicator Guidance Example from the Adaptation Fund

<b>Indicator</b>	Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks
<b>Meaning</b>	Measure of capacity developed to provide adaptation measures and reduce vulnerability
<b>Terms</b>	<ul style="list-style-type: none"><li>● <b>Targeted institutions:</b> These include scale (local, regional, national); type (public/government institutions, NGOs, private sector, etc.), and sector (health, education, financial, etc.)</li><li>● <b>Climate variability risks:</b> The probability of climate change (including variability) negatively affecting a country, community, or household as the result of the interaction between a hazard and conditions of vulnerability (Adaptation Fund)</li><li>● <b>Institutional capacity building:</b> A process, relying on a series of institutional capacity-building or skills transfer initiatives, leading to financial, managerial, and technical sustainability, that ensures more effective<ul style="list-style-type: none"><li>– resource management (financial, human, technical, community);</li><li>– service delivery;</li><li>– staff competencies at all levels;</li><li>– planning (including individual or short term, annual, strategic, and sustainability);</li><li>– implementation of appropriate, efficient, and cost-effective management systems;</li><li>– three central qualities of adaptive institutions: variety, learning capacity, and room for autonomous change; and</li><li>– three external qualities that influence and contribute to these qualities: leadership, resources, and fair governance.</li></ul></li></ul>
<b>How to collect the data</b>	Compile and analyze secondary data on threats and hazards on projects previously completed or currently implementing risk and vulnerability assessments in the area of intervention (baseline). Collect data from various sources, including direct interviews with institutions or groups managing threats and hazards information.
<b>Strength and limitations</b>	A good understanding of existing capacities and gaps is needed in order to bridge these in targeted institutions.

SOURCE: AF 2011.





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