



USAID
FROM THE AMERICAN PEOPLE

BIODIVERSITY HOW-TO GUIDE 3



Defining Outcomes & Indicators for
Monitoring, Evaluation, and Learning
in USAID Biodiversity Programming

AUGUST 2016

MEASURING IMPACT

CONTRACT INFORMATION

This work is made possible by the generous support of the American people through the United States Agency for International Development under the terms of its requisition number REQ-EGAT-12-000014 (Measuring Impact) implemented by prime recipients Environmental Incentives, LLC, Foundations of Success, and ICF International. Measuring Impact has been issued under contract number AID-OAA-C-12-00078 and supports the same program objectives as described in RFP number SOL-OAA-000050. Measuring Impact is funded and managed by the USAID Bureau for Economic Growth, Education, and Environment/Office of Forestry and Biodiversity.

AUTHORS

Caroline Stem and Richard Margoluis, Foundations of Success; Marco Flores, USAID Bureau for Economic Growth, Education, and Environment/Office of Forestry and Biodiversity

SUBMITTED BY

Elizabeth Lauck
Environmental Incentives, LLC

SUBMITTED TO

Rebecca Butterfield, Contracting Officer's Representative
USAID Bureau for Economic Growth, Education, and Environment/Office of Forestry and Biodiversity

FOR MORE INFORMATION

Environmental Incentives, LLC
725 15th Street NW, Floor 10
Washington, D.C. 20005
Email: elauck@enviroincentives.com
Website: www.enviroincentives.com

DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

ACKNOWLEDGEMENTS

USAID would like to thank Cynthia Gill, Rebecca Butterfield, Diane Russell, Mary Rowen, Olaf Zerbock, and Megan Hill from the Bureau for Economic Growth, Education, and Environment/Office of Forestry and Biodiversity; Stacey Young, Jerome Gallagher, Tony Pryor, Jackie Greene, Robert Jordan, Travis Mayo, and Lauren Leigh Hinthorne from the Bureau of Policy, Planning, and Learning; and Liz Lauck, Shelly Hicks, and Amy Gambrell from Environmental Incentives for their contributions to this How-To Guide.

Front Cover: Eastern Africa's Kilimanjaro landscape is a sprawling and complex ecosystem with a range of climatic and geographic features. Photo credit: Matt Erdman

Back Cover: Tagging and Monitoring Turtles in Tetepare, Solomon Islands. Photo credit: USAID

TABLE OF CONTENTS

I.	OVERVIEW	5
II.	INTRODUCTION	7
	How Does Results Chain-Based Indicator Development Fit into the Project Design Process?.....	8
	How Does Results Chain-Based Indicator Development Fit into the Activity Design Process?.....	9
III.	DEVELOPING INDICATORS FROM A RESULTS CHAIN	10
	Step 1: Revisit the (Sub) Purpose and Ensure It Meets the Criteria of a Good (Sub) Purpose.....	11
	Step 2: Determine Key Results for Establishing Outcome Statements.....	11
	Step 3: Write Outcome Statements for the Key Results.....	12
	Step 4: Define Indicators Based on the Results Chain.....	15
	4(a): Define Indicators Associated with Outcome Statements.....	15
	4(b): Consider Whether to Define Indicators for Any Results That Do Not Have an Outcome Statement...17	
	4(c): Consider Whether Critical Assumptions Need to be Monitored.....	17
	Step 5: Add Other Indicators (Including Standard Indicators), as Needed.....	18
IV.	USING RESULTS CHAINS FOR IMPLEMENTATION PLANS	21
V.	HOW CAN RESULTS CHAINS BE USED IN IMPLEMENTING MECHANISM STATEMENTS/ SCOPES OF WORK?	22
VI.	DEVELOPING A MONITORING, EVALUATION, & LEARNING (MEL) PLAN	24
VII.	PULLING IT ALL TOGETHER – LINKING MONITORING, EVALUATION, & LEARNING	29
	Monitoring – Using a Results Chain.....	29
	Impact Evaluation – Using a Results Chain.....	30
	Learning – Using a Results Chain.....	32
VIII.	CONCLUDING THOUGHTS	34
	RESOURCES	35
	ANNEX	36

BOXES

Box 1.	Indicator Use in USAID.....	7
Box 2.	Criteria for a Good (Sub) Purpose.....	11
Box 3.	Criteria for a Good Outcome Statement.....	13
Box 4.	Criteria for a Good Indicator.....	15
Box 5.	USAID Categories of Indicators.....	19
Box 6.	Data Quality Standards.....	24
Box 7.	USAID Conservation Enterprises Learning Group.....	33

DESIGN TIPS

Design Tip 1. Develop Clear Monitoring, Evaluation, and Learning Questions.....	12
Design Tip 2. Consider Level of Data Precision Needed.....	14
Design Tip 3. Consider Data Collection Methods.....	15
Design Tip 4. Consider the “Units” to Monitor.....	18
Design Tip 5. Consider Which Testing Approach Makes Sense.....	19

FIGURES

Figure 1. The Basic Components of a Results Chain.....	10
Figure 2. Grand River Project Example – Results Chain with Outcomes Linked to Key Results for Sustainable Fishing Practices Strategic Approach.....	12
Figure 3. Grand River Project Example – Results Chain with Outcomes and Indicators.....	16
Figure 4. Grand River Project Example – Results Chain with Context Indicators to Assess Critical Assumptions.....	17
Figure 5. Grand River Project Example – Results Chain with Custom Indicators and Related Standard Indicators.....	20
Figure 6. Grand River Project Example – How Market Development Strategic Approach Could Contribute to Sustainable Fishing Practices Strategic Approach.....	22
Figure 7. Grand River Project Example – Learning Questions for Sustainable Fishing Practices Strategic Approach.....	25
Figure 8. Grand River Project Example – Using Complete Results Chain for Monitoring.....	29
Figure 9. Grand River Project Example – Using Complete Results Chain for Impact Evaluation.....	30
Figure 10. Grand River Project Example – Using Complete Results Chain for Learning.....	32
Figure AI. Grand River Project Example – Results Chain with Additional Logical Framework Components.....	36

TABLES

Table 1. Generic Template of Key Audiences and Information Needs for Biodiversity Programming.....	8
Table 2. Grand River Project Example – Poorly Defined and Well-Defined Outcome Statements.....	14
Table 3. Grand River Project Example – Indicators Associated with Sub-Purpose and Outcome Statements.....	16
Table 4. Generic Template of Key Audiences and Indicators of Interest for Biodiversity Programming.....	18
Table 5. Grand River Project Example – Partial Monitoring Plan for Sustainable Fishing Practices Strategic Approach.....	28
Table AI. Grand River Project Example – Partial Logical Framework Matrix Derived from Results Chain.....	37

ACRONYMS

ADS	Automated Directives System
AOR	Agreement Officer’s Representative
CDCS	Country Development Cooperation Strategy
COR	Contracting Officer’s Representative
E3	Bureau for Economic Growth, Education, and Environment
DQA	Data Quality Assessment
FAB	Office of Forestry and Biodiversity
MEL	Monitoring, Evaluation, and Learning
PAD	Project Appraisal Document
PIRS	Performance Indicator Reference Sheet
PMP	Performance Monitoring Plan
PPR	Performance Plans and Reports
SOW	Scope of Work
USAID	United States Agency for International Development

I. OVERVIEW

Biodiversity plays a central role in influencing multiple development sectors, including economic growth, food security, health, governance, and climate change. To this end, the United States Agency for International Development (USAID) has invested heavily in addressing threats to biodiversity in high priority forests, grasslands, coral reefs, and other ecosystems (\$250 million in FY 2015). USAID is also investing in improving biodiversity programming efforts in order to better document its impact, learn from its efforts, and adapt and improve its work. With this in mind, USAID's Bureau of Economic Growth, Education, and Environment (E3) Office of Forestry and Biodiversity (FAB) is working to develop strong guidance to support program design teams as they develop and manage biodiversity conservation programs within the Program Cycle and in accordance with the USAID Biodiversity Policy.

This Biodiversity How-To Guide is the third in a series of three How-To Guides that provide in-depth guidance on key tools and approaches.

- ▶ The first How-To Guide, [Developing Situation Models in USAID Biodiversity Programming](#), focuses on how to develop situation models to map out the biodiversity conservation problem context to be addressed.
- ▶ The second How-To Guide, [Using Results Chains to Depict Theories of Change in USAID Biodiversity Programming](#), builds off the situation model guide to help design teams clearly state the expected results and assumptions behind the proposed strategic approaches¹ that make up the program's theory of change in a results chain format.
- ▶ This third How-To Guide uses the results chains developed in the second How-To Guide to identify key results for developing outcome statements and indicators.

Collectively, the three How-To Guides are designed to help program design teams systematically approach biodiversity conservation design, planning, monitoring, evaluation, and learning within the Program Cycle. While these How-To Guides were written primarily to support efforts of teams designing biodiversity conservation projects or activities, the products generated are designed to align with and contribute directly to the Intermediate Results and Development Objectives of a Mission's Country Development Cooperation Strategy (CDCS) Results Framework.

While the focus is on biodiversity programming, the concepts, practices, and tools described in these How-To Guides can and have been used in programming of other development sectors, as well as integrated (multi-sector) programming. The methodology described through these three How-To Guides is based on the *Open Standards for the Practice of Conservation*, a resource that is widely used in the global conservation community. While it will help USAID staff and implementing partners comply with Program Cycle requirements and Biodiversity Code requirements, the methodology is not itself required, but highly recommended.

This third Biodiversity How-To Guide describes how program design teams can use results chains to clearly articulate outcome statements and develop indicators for managing biodiversity programs. This How-To Guide also clarifies how design teams can use the same indicators, derived from the same results chains, for multiple purposes including monitoring, evaluation, and learning across programmatic scales.

Once a design team completes the steps outlined in this How-To Guide (and the first two Biodiversity How-To Guides), the team will have defined its purpose, sub-purpose, and outcome statements, identified which indicators to measure, and considered which monitoring methods would be most appropriate. These products constitute key elements of the monitoring portion of the program's Monitoring, Evaluation, and Learning (MEL) Plan – a plan that facilitates learning and adaptation at and across activity, project, and CDCS levels.

¹ A strategic approach is a set of actions with a common focus that work together to address specific threats, drivers, and/or opportunities in order to achieve a set of desired results.

This How-To Guide breaks down the process of developing indicators into five steps:

- Step 1: Revisit the (sub) purpose and ensure it meets the criteria of a good (sub) purpose
- Step 2: Determine key results for establishing outcome statements
- Step 3: Write outcome statements for the key results
- Step 4: Define indicators based on the results chain
- Step 5: Review indicators and add others needed by audiences

This How-To Guide also includes a series of design tips for program design teams to keep in mind as they develop their MEL Plans:

- Design Tip 1: Develop clear monitoring, evaluation, and learning questions
- Design Tip 2: Consider level of data precision needed
- Design Tip 3: Consider data collection methods
- Design Tip 4: Consider the “units” to monitor
- Design Tip 5: Consider which testing approach makes sense

This How-To Guide also helps program design teams and implementing partners understand how results chains and their associated components can help shape work plans, implement mechanism statements of work, and an overall MEL Plan. This final section helps contextualize the guidance by providing examples of how design teams and implementing partners can use results chains for monitoring, impact evaluation, and learning – three related and inter-dependent aims. This final section is not intended to comprehensively cover evaluations and learning within biodiversity programming, a topic addressed in more detail in other Agency sources.² Rather, it demonstrates how results chains can help teams develop robust MEL Plans based on explicit theories of change and how teams should use those plans to learn and adapt over time, thus improving their contribution to biodiversity conservation theory and practice.

² In addition to the USAID Evaluation Toolkit, at the time of publication the Agency was completing a Monitoring Toolkit and a Collaboration, Learning, and Adapting Toolkit, which are both forthcoming in 2016.

II. INTRODUCTION

One of the greatest challenges faced by USAID program³ managers and implementing partners is the selection of relevant and useful indicators, yet this is one of the most important tasks of the program design and approval process. In USAID, developing good indicators and managing related data support effective monitoring and evaluation, which contribute to learning at all levels of the Program Cycle, from CDCS to project to activity. Doing so also provides a foundation to inform learning, adaptive management, and effectiveness across these scales (Box 1).

To implement the USAID Program Cycle and comply with the 2014 Biodiversity Policy, USAID staff must know how to develop indicators that can help build the evidence for whether USAID assistance is leading to intended biodiversity conservation outcomes and impact. USAID thus requires design teams to develop and refine appropriate indicators⁴ that enable performance monitoring, evaluation of key programmatic assumptions over the course of project or activity implementation, and learning and adapting throughout the Program Cycle.⁵ Likewise, the Biodiversity Code,⁶ as stated in the Biodiversity Policy, calls for the use of theories of change to articulate the underlying assumptions that lead from conservation action, through a series of sequential and/or parallel results, to one or more final expected outcomes. As such, developing relevant indicators first involves developing good theories of change.

This How-To Guide provides guidance to help USAID design teams and implementing partners use results chains to clearly articulate outcome statements and develop highly targeted and effective indicators for managing biodiversity projects and activities. Using the systematic process outlined here can help answer a call in the Biodiversity Policy to integrate program design, management, and monitoring to test assumptions, learn, and adapt actions. This ability to revisit assumptions, learn, and adapt as needed is the essence of good adaptive management, which is encouraged by the USAID Program Cycle.

This How-To Guide is also designed to illustrate the relationship among monitoring, evaluation, and learning in biodiversity programs. In practice, these functions are often treated as three separate endeavors with little interaction or relationship among them. However, they are based on the same set of underlying, testable assumptions, indicators, data, and analysis – all of which can be grounded in a program's results chains. Well-designed monitoring and evaluation should directly contribute to learning. In particular, learning efforts might include explicit learning agendas within projects or across sites, projects, and/or Missions based on common results chains and indicators.

This How-To Guide shows how design teams and implementing partners should develop indicators at the beginning of programming – during the design of projects and activities – as a foundation for ongoing monitoring and evaluation of results throughout implementation of the program. This guide helps design teams, program managers, and implementing partners understand the conditions for good monitoring and evaluation using theories of change that are depicted in results chains, and to set the stage for informed learning. However, this guide does not provide in-depth guidance on all conditions that need to be in place for good learning to happen. For more information on how to facilitate increased learning, see USAID's Collaborating, Learning, and Adapting Toolkit and other resources on the Agency's [Learning Lab](#).

Box 1. Indicator Use in USAID

Traditionally, indicators have been used for three main functions at USAID. Although presented separately here, there is much interplay among these functions, with the same indicators often used for all three functions. In particular, monitoring and evaluation often serve as the key inputs to learning.

Monitoring: *The ongoing and systematic tracking of data or information relevant to programs to determine if strategic approaches are achieving desired results*

Evaluation: *The systematic collection and analysis of information about the characteristics and outcomes of programs conducted as a basis for judgments to improve effectiveness, and timed to inform decision about current and future programming*

Learning: *A continuous process of analyzing a variety of information sources and knowledge, leading to the iterative adaptation of strategic approaches.*

³ In all three Biodiversity How-To Guides, the term “program” or “programming” is used as a general term to encompass USAID project and activity levels.

⁴ In this guide, the term “indicators” includes both “performance indicators” and “impact indicators.” Indicators are neutral entities that can measure a variable of interest and can be used for performance and impact evaluation purposes, depending upon how the data are collected and used.

⁵ See [USAID Program Cycle Learning Guide, 2012](#).

⁶ USAID has a Biodiversity Code that guides it in determining which activities meet the “direct” programming biodiversity requirement. All USAID programs and activities that use biodiversity funds must comply with all four of the Code's criteria. See [USAID Biodiversity Policy](#).

HOW DOES RESULTS CHAIN-BASED INDICATOR DEVELOPMENT FIT INTO THE PROJECT DESIGN PROCESS?

The project design process is aimed at grounding projects in the CDCS and resulting in the authorization of effective, evidence-based projects and activities through which those projects are implemented. USAID policy requires project design teams to develop preliminary indicators and refine them further in their MEL Plan during the project design planning phase. Also, these indicators must be updated during implementation as circumstances change and lessons are learned (see section on Amending and Updating the Project Appraisal Document (PAD) in Automated Directives System (ADS) 201).

The project MEL Plan provides a framework for monitoring, evaluation, and learning that pulls together performance information from all activities contributing to a project. The MEL Plan identifies what questions will be addressed through evaluation and the associated data needs. It also constitutes an essential part of the Mission's efforts to strengthen the evidence base of their portfolios. This How-To Guide describes how design teams can build on the results chains developed to support the preparation of the MEL Plan and link them to good learning practices.

Indicators will be developed primarily to track key results along a results chain, but the design team may identify other information needs and additional indicators. As discussed in further detail in the steps for developing indicators from a results chain, design teams will likely need to consider different audiences and information needs when developing an MEL Plan. This may require design teams to collect and present data that are particularly relevant for those interests and needs. Table 1 illustrates how information needs and interests could vary among audiences.

Table 1. Generic Template of Key Audiences and Information Needs for Biodiversity Programming

Audience	What Audience Needs/Wants to Know
Program Design and/or Management Team(s)	How is the project doing? Is the theory behind the results chain accurate? What is working, what is not, and why? Do the strategic approaches need to be adjusted?
Implementing Partners	How is the project doing? Is the theory behind the results chain accurate? What is working, what is not, and why?
USAID Mission	How is the project doing? How is the project contributing to Mission Development Objectives and/or Intermediate Results? Are the assumptions correct about expected results? What is working, what is not, and why?
USAID E3/FAB	What is working, what is not, and why? Is this strategic approach a good investment for achieving biodiversity conservation across Missions? What are some key stories from the project?
USAID/Washington Technical and Operations Staff	How is the Mission doing on its Development Objectives and/or Intermediate Results? What are some key stories from the project? How does USAID's work contribute to U.S. Government aims?
Host Country – Government	How is the project doing? What is working, what is not, and why? How is the project contributing to the country's (natural) well-being?
Host Country – General Public	How is the project doing? What is working, what is not, and why? How is the project contributing to the country's (natural) well-being?
United States (U.S.) Government/Congress	How does USAID's work contribute to U.S. Government aims?

While it is important to think about audiences when developing indicators, it is also helpful to consider whether any indicators can meet multiple needs. For example, the project MEL Plan contributes to the Mission-wide Performance Management Plan (PMP). Design teams should look for opportunities to ensure project-level indicators provide meaningful data not only for project-level tracking and learning, but also for tracking and learning about the progress of the CDCS or other projects. Likewise, teams developing activities within a project could identify indicators that could assist project-level monitoring, evaluation, and learning.

Aligning and tracking indicators across scales in this way not only makes the development of Performance Plans and Reports (PPRs) and Portfolio Reviews more efficient and informative (see section on Monitoring Indicators in [ADS 201](#)), but it also encourages learning within and across Missions about what results are being achieved and whether and to what degree different strategic approaches are achieving desired results.

The [USAID Program Cycle Learning Guide](#)⁷ emphasizes this important link between program design, monitoring, and learning:

“Monitoring is not simply about hitting targets for reporting and accountability, but rather provides evidence for managers to answer the questions: ‘Is there a need for course correction?’ ‘Do we need an evaluation to understand how to improve progress?’ Addressing these questions should be done early and often to create tight feedback loops, more transparency, better understanding of the project, and the capability to adapt it to best achieve the desired outcome.”

HOW DOES RESULTS CHAIN-BASED INDICATOR DEVELOPMENT FIT INTO THE ACTIVITY DESIGN PROCESS?

The methodologies and tools described throughout this series of How-To Guides could be used for both project and activity design processes. While an activity is likely to have its own detailed, context-specific work plan prepared by the implementing partner, this plan should not be independent of the USAID project to which it is expected to contribute. The primary function of project- and activity-level MEL Plans is to monitor project and activity results and to collect comparable data over time and across implementing mechanisms to inform learning and improve development. Following the development hypothesis laid out in the CDCS results framework, project- and activity-level MEL Plans should also inform the CDCS-level PMP.

Activity design teams should be clear about how their strategic approaches contribute to a project’s (sub) purpose⁸ and expected results. More specifically, and where relevant, an activity should use language that is similar to (or the same as) PAD language for (sub) purposes, expected results, and associated indicators. At least some of the indicators that an activity measures, including the activity (sub) purpose-related indicators, should feed into a project’s MEL Plan, although it is likely that the activity will have more detailed results chains and associated indicators that are more specific than what is needed for the project’s MEL Plan.

Like project design teams, activity design teams want to know what is working, what is not, and why. Therefore, activity design teams should take the time to ensure they design and implement their activity in a way that is clearly linked to the project’s theory of change, clarifies the theories of change at the activity level, and facilitates learning and adapting. The learning and adapting described here should take place through a collaborative and ongoing dialogue with USAID project staff, implementing partners, and stakeholders, as well as representatives from other relevant programs who are working toward similar aims or on similar issues.

⁷ As of the date of publication of this How-To Guide, the USAID Bureau of Policy, Planning, and Learning was updating the Program Cycle Learning Guide into a Collaborating, Learning, and Adapting Toolkit scheduled for release in late 2016.

⁸ The term “(sub) purpose” is used in this How-To Guide to refer to a purpose or sub-purpose, depending on the level of planning within a Mission’s Results Framework.

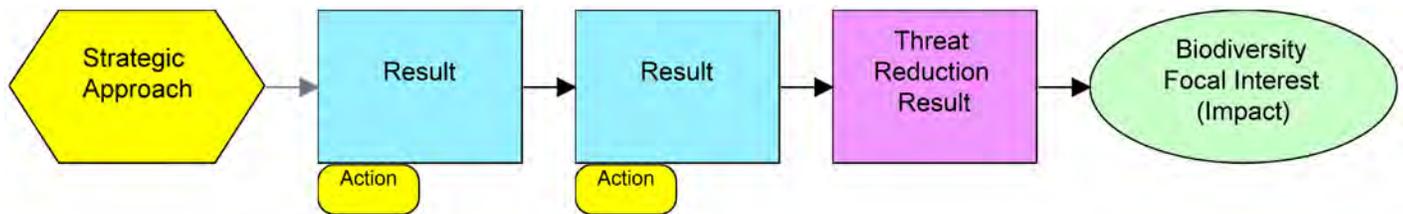
III. DEVELOPING INDICATORS FROM A RESULTS CHAIN

This section provides step-by-step guidance to help project and activity design teams meet USAID Program Cycle requirements to develop plans for project monitoring, evaluation, and learning. These steps comply with the Biodiversity Code, as updated in the Agency’s Biodiversity Policy, and its requirement to “monitor indicators associated with a stated theory of change for biodiversity conservation results.”⁹

This How-To Guide focuses on development of indicators for biodiversity conservation programs; however, the concepts and approaches are consistent with the Program Cycle and can be applied to integrated and other sectoral programs. If design teams have followed the first two Biodiversity How-To Guides (Developing Situation Models and Using Results Chains to Depict Theories of Change), they should now have the following key products to continue the design of projects and activities:

- ▶ A situation model that graphically depicts the context or problem analysis and summarizes what the design team is trying to conserve (biodiversity focal interests), the direct threats they face, and the social, cultural, economic, political, and institutional drivers influencing those direct threats.
- ▶ A results chain(s) that, according to the agreed-upon theory of change, identifies the results that must be achieved to change the program context and the prioritized strategic approaches with the greatest potential to help achieve those results. Figure 1 provides a reminder of the key elements of a results chain.¹⁰

Figure 1: Basic Components of a Results Chain



Monitoring design tips are presented in grey text boxes throughout this How-To Guide. They will be useful concepts for design teams to consider as they identify indicators and develop MEL Plans.

BIODIVERSITY HOW-TO GUIDE EXAMPLE: THE GRAND RIVER PROJECT

This How-To Guide uses the fictitious Grand River project example¹¹ to illustrate how to use results chains to identify key results and their indicators. Used in the Situation Models and Results Chains How-To Guides, this fictitious project is based on real-life conservation contexts. The Grand River project example’s purpose links to a fictitious CDCS component – an Intermediate Result on “Biodiversity conservation for improved well-being of targeted rural communities.”

⁹ [USAID Biodiversity Code](#).

¹⁰ For more details on the components and development of results chains see *Biodiversity How-To Guide 2: Using Results Chains to Depict Theories of Change in USAID Biodiversity Programming*.

¹¹ The Grand River example used in these How-To Guides is a teaching example and should not be interpreted as an endorsement of any specific thematic or technical decision taken along the course of the example development.

Step 1: Revisit the (Sub) Purpose and Ensure It Meets the Criteria of a Good (Sub) Purpose

In the second Biodiversity How-To Guide, design teams set a purpose or sub-purpose(s) that is directly linked to biodiversity focal interests and that ties into the Mission's Results Framework. The first step in this process is to revisit that (sub) purpose and ensure it meets the criteria of a good (sub) purpose.

Box 2 outlines criteria for a well-written (sub) purpose statement. USAID does not require these criteria, but it is useful to apply them, as the criteria help ensure that a design team is explicit about what it wants and needs to achieve for its strategic approaches to contribute to conserving its biodiversity focal interests. A well-defined (sub) purpose greatly facilitates the process of selecting the right monitoring indicators.

Box 2. Criteria for a Good (Sub) Purpose

A well-written purpose or sub-purpose should meet the following criteria:

- **Impact-Oriented** – Directly associated with a biodiversity focal interest and describes the desired future status of that focal interest over the long term
- **Time-Limited** – Achievable within a specific period of time (generally 10 or more years for a biodiversity context, but PAD design teams should consider a 5-year timeframe compatible with the CDCS)
- **Measurable** – Definable in relation to some standard scale (numbers, percentage, fractions, or all/nothing states)
- **Specific** – Clearly defined so that all people involved in the project have the same understanding of what the terms in the sub-purpose mean

In the Grand River project example the design team set a high-level project purpose statement to address the biodiversity program scope: “Ecological integrity of priority terrestrial and freshwater ecosystems in the Grand River watershed restored for current and future generations.” They also developed a sub-purpose statement for the river fish populations biodiversity focal interest: “By 2025, more than 80% of the sub-watersheds of the Grand River have self-sustaining populations of key native river fish.” This meets the criteria for a good sub-purpose because it is impact-oriented, time-limited, measurable, and specific.

In the Grand River project example, the situation model includes (among others) the high-rated direct threat of overfishing, which affects the biodiversity focal interest: river fish populations. The Grand River project design team brainstormed a number of strategic approaches to reduce overfishing and contribute to the sub-purpose of healthy river fish populations.¹² They developed a results chain for the high-rated strategic approach on promoting sustainable freshwater fishing practices (see Figure 2 on page 12).

Step 2: Determine Key Results for Establishing Outcome Statements

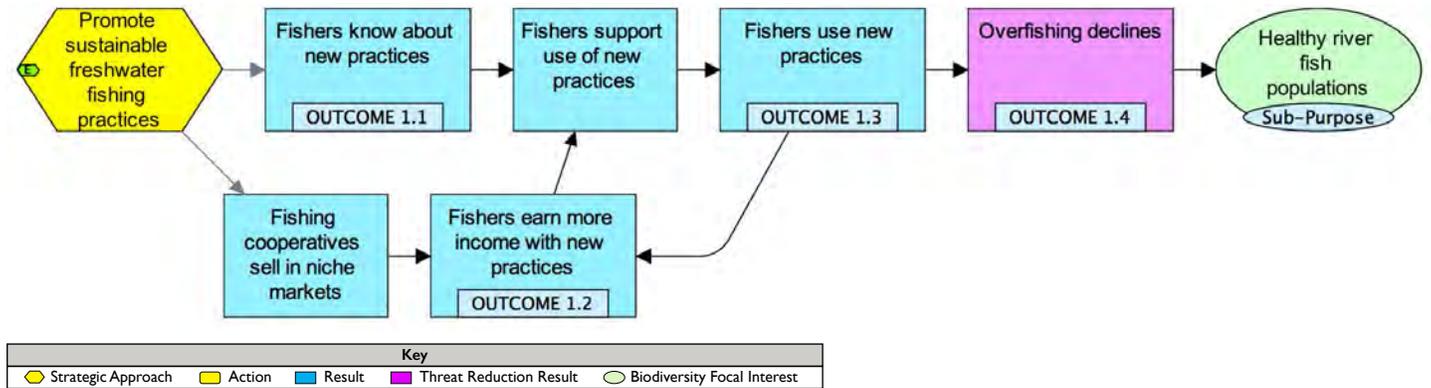
A results chain will have a few key results that are essential to achieve in order for the assumptions behind a strategic approach to hold true. These are key results for which a design team could consider assigning outcome statements. In most cases, design teams will not (and should not) develop outcome statements for all results in a results chain. Design teams will have to use their judgment to identify key results, but at a minimum, they should try to choose results that are necessary to achieve the overall theory of change.

As a starting point, design teams should always identify threat reduction results as key results. In most cases, it is advisable to have at least one short-term outcome statement (associated with the left side of the chain), one or more medium-term outcome statements in the middle, and an outcome statement linked to the threat reduction result(s) to the right. This will allow program managers to check progress at various points over the course of program implementation, as annual reporting and review tasks are completed, and to make adjustments as needed.

¹² For more information on how to develop a (sub) purpose statement, see Step 1 in *Biodiversity How-To Guide 2: Using Results Chains to Depict Theories of Change in USAID Biodiversity Programming*.

In the Grand River project example, the design team selected four key results for which outcome statements would be developed. As shown in Figure 2, there are key results (labeled “outcome”) at the beginning, in the middle, and on the right side of the results chain diagram. This is a somewhat simple example, so a relatively high proportion of results have outcome statements.

Figure 2: Grand River Project Example – Results Chain with Outcomes Linked to Key Results for Sustainable Fishing Practices Strategic Approach



*For clarity and focus on the results, the illustrative actions previously drafted for this example strategic approach are not included in this figure.

In an ideal world, design teams would set outcome statements (and associated indicators) at every result along a chain. In reality, however, monitoring resources are limited, so outcome statements should be limited to key results only. If the design team is developing more complex results chains, this may mean outcome statements for a much smaller proportion of the chain (approximately 25–30% of the results). This is an important point, as design teams will need to develop indicators for and monitor all outcome statements. For program management and monitoring purposes, they will want to collect the minimal amount of data that will help them make good management decisions. Agency guidance states that “PMP and project and activity MEL Plans should include as many or as few performance indicators as necessary to ensure that progress toward expected results is sufficiently tracked, while also being cost-effective by eliminating redundant indicators” (ADS 201). There may be concern that a project with multiple strategic approaches has a large number of indicators. In these cases, it helps to remember that, although all these indicators may be part of the draft project MEL Plan, some may become only activity-level custom indicators once implementing mechanisms are awarded. Nonetheless, it is not good practice to place an arbitrary limit on the total number of indicators.

DESIGN TIP 1: DEVELOP CLEAR MONITORING, EVALUATION, AND LEARNING QUESTIONS

An initial and important step in undertaking monitoring, evaluation, and learning is to be clear about the learning objectives. Questions should be precise, specific, and based on a theory of change. The same question may serve monitoring, evaluation, and learning purposes. It is important to think about these questions early because they can help identify key results for outcome statements. In the Grand River project example, an important question might be whether the use of new fishing practices leads to a decline in overfishing. If this question is important, the design team should set outcome statements and indicators for these two results in their results chain.

It is common that monitoring, evaluation, and learning questions are very broad and general – for example, “Is there evidence that USAID funding led to measurable impact?” This question may be an important aim of an evaluation, but it is not a good monitoring, evaluation, and learning question. A more meaningful question is: “Did the achievement of result X lead to demonstrable changes in factor Y?” Or, depending on the context, a less rigorous question may suffice, such as, “Is there plausible evidence that result X is contributing to factor Y?”

The more direct the causal linkage between two results (the “closer” they are) in a results chain, the clearer the question can be and the more feasible monitoring, evaluation, and learning efforts will be.

Further guidance can be found in the USAID [Evaluation Toolkit](#).

Step 3: Write Outcome Statements for the Key Results

An outcome statement is a formal statement that defines in specific terms what a design team hopes to achieve for key results on the way to achieving the overall purpose or sub-purpose(s). Outcome statements should be directly tied to the assumptions laid out in the results chain and indicate the desired change expected. If a project or activity is well conceptualized, designed, and implemented, the realization of its outcome statements should lead to the fulfillment of the (sub) purpose (as stated in the project logic model).

The design team will follow a similar process to write the outcome statements as it did when drafting its (sub) purpose. The design team should start by developing a draft outcome statement for one of the selected key results. This draft should focus initially on describing the desired achievement, and then it should be refined until it meets all criteria in Box 3.

USAID does not require that outcome statements meet these criteria. However, as with a (sub) purpose, it is useful to specify this level of detail in order to be clear about expectations.

In the Grand River project example, a draft outcome for the result related to fishermen using new, sustainable freshwater fishing practices (Outcome 1.3 in Figure 2 on page 12) might say:

Draft 1: Local fishermen use new freshwater fishing practices.

Reviewing the criteria, the Grand River project design team should ask itself:

- Is it **results-oriented**? Yes, somewhat, because it is tied to a critical result in the chain, and it represents a necessary change.
- Is it **time-limited**? No, it does not specify a time period.
- Is it **measurable**? Yes, one could measure whether they are using the practices or not.
- Is it **specific**? No, it is not clear how many fishermen should be using the practices as a result of this strategic approach, what practices they should be using, or where they should be using them.
- Is it **practical**? This is difficult to assess without knowing the context, but it can be assumed that it is practical.

The Grand River project design team should modify the outcome as needed until it complies with the criteria for a good outcome statement. The refined draft might be:

Draft 2: By 2017, the fishermen in the watershed are using the sustainable freshwater fishing practices.

This second draft is time-limited and more specific because it focuses on changing the practices of the fishermen in the watershed. However, it could be more specific. If the Grand River project design team defined a target number of fishermen using new fishing practices, that would provide more specific information about the desired result. The final version of the outcome statement might read:

Final Draft 3: By 2017, at least 60% of the fishers in identified priority sub-watersheds of the Grand River are using only sustainable freshwater fishing practices.

When setting outcome statements, it is important to consider what level of outcome the program needs to achieve in order to have the desired impact on the next result in the chain. The criterion of “results-oriented” in Box 3 states that an outcome statement should describe necessary changes. In the outcome statement for the key result of new fishing practices used, the Grand River project design team should consider whether 60% of the fishers using only sustainable

Box 3. Criteria for a Good Outcome Statement

A well-written outcome statement should meet the following criteria:

- **Results-Oriented** – Represents necessary changes in the results that affect one or more biodiversity focal interests
- **Time-Limited** – Achievable within a specific period of time (for an outcome statement, the timeframe is shorter than for a sub-purpose)
- **Measurable** – Definable in relation to some standard scale (numbers, percentage, fractions, or all/nothing states)
- **Specific** – Clearly defined so that all people involved in the program have the same understanding of what the terms in the sub-purpose mean
- **Practical** – Achievable and appropriate within the context of the program, and in light of the political, social, and financial context

practices is sufficient to lead to the desired change in overfishing (the next result and outcome statement down the chain). If it is not, the outcome statement may have to be adjusted. In going through this process, design teams should revisit the criteria for good outcome statements, in particular the “practical” criterion. If a greater percentage (e.g., 90%) of fishers using sustainable freshwater fishing practices is needed for overfishing to decline, the design team should ask itself whether that outcome statement is still practical.

Table 2 includes examples of outcome statements for key results in the example sustainable freshwater fishing practices strategic approach (Figure 2 on Page 12) that meet and do not meet the criteria for a good outcome statement. As implied above, well-defined outcome statements consider the concept of “sufficient.” For the Grand River project example’s sustainable fishing strategic approach, Outcome 1.1 identifies that 90% of fishers in identified areas should be able to name and describe sustainable freshwater fishing practices, while Outcome 1.3 states that at least 60% of fishers in identified areas are using only sustainable freshwater fishing practices. The assumption is that not all of those who know about the practices will use them, but at least 90% need to know about them in order to have 60% using them.

Table 2. Grand River Project Example – Poorly Defined and Well-Defined Outcome Statements

Result	Poorly Defined Outcome Statement	Reasons It Does Not Meet Criteria	Well-Defined Outcome Statement
Fishermen know about new [sustainable freshwater fishing] practices	Poorly Defined Outcome 1.1: Most fishermen in the region are aware of the new practices	Not time-limited Not specific – “aware of practices” is vague	Well-Defined Outcome 1.1: By 2015, at least 90% of the fishers in identified sub-watersheds if the Grand River can name and describe at least two new sustainable freshwater fishing practices
Fishers earn more income with new practices	Poorly Defined Outcome 1.2: By 2016, fishers are earning more income with the new practices	Not specific – does not indicate which fishers, how many are earning more income, or how much their income has increased	Well-Defined Outcome 1.2: By 2016, at least 80% of the fishers using the new practices are earning at least 30% more income than under the unsustainable methods (and none is earning less)
Overfishing declines (threat reduction result)	Poorly Defined Outcome 1.4: By 2019, fishing is reduced	Not specific – does not indicate how much fishing should be reduced	Well-Defined Outcome 1.4: By 2018, the amount (in tons) of key identified species caught outside of established harvest quotas declines by at least 25%, as compared to 2015 levels

It is important to consider that design teams may develop initial outcome statements without complete information. Even with incomplete information these statements can be important, as they provide clarity about what the design team is trying to achieve, and therefore, what it should measure to see if its assumptions are holding. As part of the adaptive management process, program managers and implementing partners should revisit and update outcome statements over time, as relevant information about their effectiveness is gathered and analyzed. Also, implementing partners and program managers should revisit their results chains and analyze the degree to which their expected results are occurring and what may be influencing those results – positively or negatively. They may find that a strategic approach is not working as they expected, and thus, they may need to adapt it or even abandon it.

DESIGN TIP 2: CONSIDER LEVEL OF DATA PRECISION NEEDED

As a team designs its MEL Plans, it needs to consider how much precision is needed. Design teams must ensure that selected indicators lead to performance monitoring data that meet the data quality standards they have developed (see section on Monitoring Data Quality in [ADS 201](#); Box 6 on page 24 provides a summary of USAID’s data quality standards). If an implementing partner or USAID program manager needs to know if a project is generally on track, the data do not need to be very specific or precise, or even plentiful. If, however, the implementing partner or USAID program manager is trying to gauge the efficacy of an investment with a high level of rigor, then a lot of very precise information with high reliability may need to be collected. Resource allocation to monitoring, evaluation, and learning tasks – including budget and personnel – is highly dependent on the level of precision a program needs with its monitoring or evaluation. The level of data precision required is often determined by the specificity of the monitoring, evaluation, and learning questions (see Design Tip 1 on page 12).

Step 4: Define Indicators Based on the Results Chain

USAID's Biodiversity Code requires that programs implemented with biodiversity funds "monitor indicators associated with a stated theory of change for biodiversity conservation results." This step will help design teams define those indicators based on the results chains and associated outcome statements and (sub) purposes that were developed earlier. The results chain itself lays out a program's theory of change, while the outcome statements and (sub) purposes provide a clear idea of what the program is trying to achieve. If a design team has done a good job defining the (sub) purpose and outcome statements, it should be in a good position to easily identify the indicators relevant for the strategic approach and the context within which it is operating.

In its broadest sense, an indicator is a measurable entity related to a specific information need, such as the status of a biodiversity focal interest, change in a threat, or progress toward an outcome. USAID's [ADS 201](#) defines an indicator as "a quantifiable measure of a characteristic or condition of people, institutions, systems, or processes that may change over time." A performance indicator "measures expected outputs and outcomes of strategies, projects, or activities based on a Mission's Results Framework or a project or activity's logic model."

DESIGN TIP 3: CONSIDER DATA COLLECTION METHODS

Monitoring methods are specific practices or techniques used to collect data to measure an indicator. Good methods should be accurate, reliable, cost-effective, feasible, appropriate, and timely. In selecting monitoring methods, a general principle is to aim for the most cost-effective method that will provide data reliable enough to meet management needs and comply with data quality standards.

For example, if a program is concerned about the effects of deforestation on river flow and needs to monitor the quantity and timing of flow, the monitoring methods could include:

- Making a qualitative observation about flow levels (e.g., very low, low, medium, high, and very high) daily at a specific location on the river
- Taking measurements with a calibrated stream gauge once or twice per day
- Installing a concrete weir and an electromagnetic water gauge to take continuous, precise measures of water flow

All of these methods are valid, but they vary in terms of cost and precision. The most appropriate method will depend on management needs and resources. In a real-world conservation scenario with limited resources, a design team may be willing to sacrifice some precision to get rough measures of river flow at several locations.

Module 2.3 and Annex 8 of the [PMP Toolkit](#) are helpful resources for identifying data collection methods.

Step 4(a): Define Indicators Associated with Outcome Statements

To keep a monitoring plan manageable and clearly linked to the program's theory of change, the design team should use the results chain(s) and focus their monitoring efforts on the (sub) purpose and outcome statements that collectively describe the status of the biodiversity focal interests and key results the program hopes to achieve through the implementation of the strategic approaches.

In the Grand River project example, the design team should develop indicators (denoted with a purple triangle) for each of the outcome statements and the sub-purpose, at a minimum (see Figure 3 on page 16). The sustainable freshwater fishing practices strategic approach has a simple chain and proportionately more outcome statements on results than most results chains should have.

Box 4 provides practical guidance on criteria and additional considerations for setting indicators. When selecting indicators, USAID staff also should ensure that

Box 4. Criteria for a Good Indicator

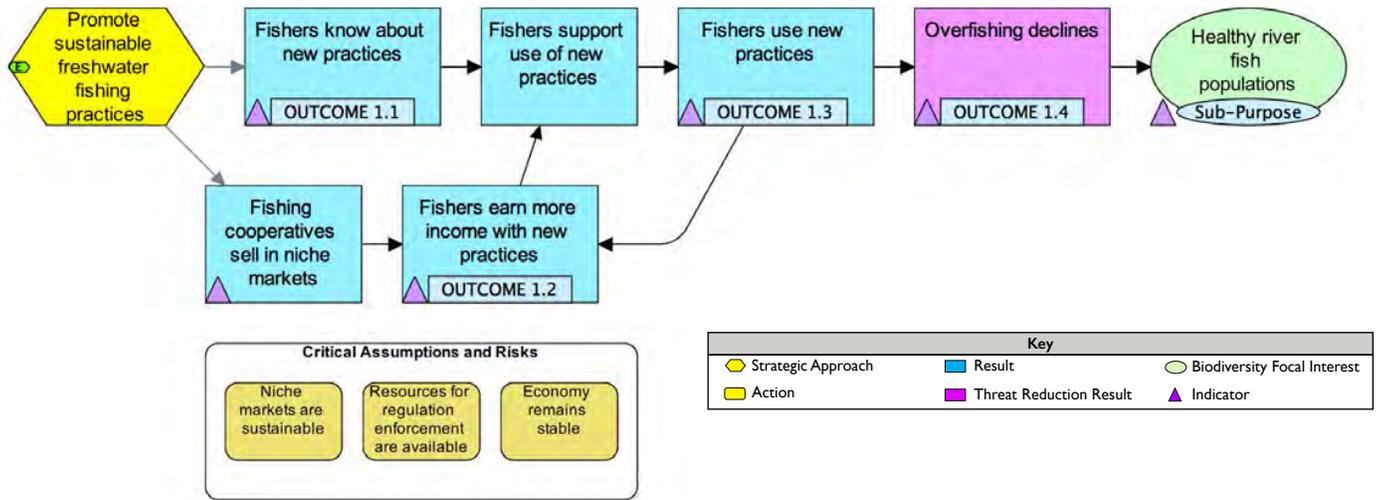
Indicators should meet the following criteria:

- Measurable** – Can be recorded and analyzed in quantitative and qualitative terms
- Precise** – Defined the same way by all people
- Consistent** – Does not change over time; always measures the same thing
- Sensitive** – Changes proportionately in response to the actual changes in the condition being measured
- Objective** – Conducive to impartial and independent data collection, management, and analysis
- Practical and Useful** – Data measured will be useful for management decision-making
- Disaggregated** – Can be disaggregated by gender, age, location, or other relevant dimensions

In addition, the best indicators will be technically and financially feasible and of interest to partners, donors, and other stakeholders. See Section 2.2 and Annex 7 from the [PMP Toolkit](#) for additional considerations and criteria for indicator selection.

the selected indicators will lead to performance monitoring data that meet the quality standards of validity, integrity, precision, reliability, and timeliness (see Data Quality Standards section of [ADS 201](#)).

Figure 3: Grand River Project Example – Results Chain with Outcomes and Indicators



Sometimes, monitoring a particular indicator will be too costly, difficult, or time-consuming. In such cases, a good alternative is to use proxy (substitute) indicators that provide a representation of the desired information through indirect means. For example, a design team may opt to monitor the daily kilograms of rice consumed by local households or the type of roofing a community uses to determine changes in income rather than tracking household income directly. In these cases, the design team should make sure the indicator is sensitive and sufficiently responsive to indirectly measure the progress toward a desired outcome (see Box 4 on page 15). Program managers and implementing partners may also need to review proxy indicators over time to ensure they remain relevant as implementation of the project or activity progresses.

When outcome statements and (sub) purposes meet the criteria of being specific and measurable, the indicators should flow directly from these statements. Table 3 presents sub-purpose and outcome statements and their associated indicators using the sustainable freshwater fishing practices strategic approach from the Grand River project example.

Table 3. Grand River Project Example – Indicators Associated with Sub-Purpose and Outcome Statements

Sub-Purpose or Outcome Statement	Indicators
Sub-Purpose: By 2025, more than 80% of the identified sub-watersheds of the Grand River have healthy, self-sustaining native river fish populations.	% of the identified sub-watersheds of the Grand River classified as having healthy, self-sustaining native river fish populations
Outcome 1.1: By 2015, at least 90% of the fishers in identified sub-watersheds of the Grand River can name and describe at least two new sustainable freshwater fishing practices	% of fishers in identified sub-watersheds of the Grand River who can name and describe at least two new sustainable freshwater fishing practices
Outcome 1.2: By 2016, at least 80% of the fishers using the new practices are earning at least 30% more income than they were before they started using the new practices (and none are earning less	% of fishers using new practices who are earning at least 30% more income than they were before they started using the new practices Average % increase in income for fishers using new practices
Outcome 1.3: By 2017, at least 60% of the fishers in identified sub-watersheds of the Grand River are using only sustainable freshwater fishing practices	% of the fishers in identified sub-watersheds of the Grand River who are using only sustainable freshwater fishing practices
Outcome 1.4: By 2018, the amount (in tons) of key identified species caught outside of established harvest quotas declines by at least 25%, as compared to 2015 levels	# of tons of key identified species caught outside of established harvest quotas

Keep in mind that an indicator defines what the program is trying to measure, but it should not include the target level or trend that it wishes to see. Those indicator target levels are established when developing outcome statements (Step 3 on page 13) and will be included in the program’s MEL Plan, as described in Section VI on page 24. For example, if a program is monitoring the use of circle hooks by fishermen, the indicator could be “number of fishermen trained that replace traditional J-hooks with circle hooks during the life of the project.” It would not be “at least 1200 fisherman have replaced their J-hooks with circle hooks” or “increased use of circle hooks.”

Step 4(b): Consider Whether to Define Indicators for Any Results That Do Not Have an Outcome Statement

In addition to identifying indicators for its (sub) purpose and selected key results (for which outcome statements have been defined), a design team may want to define an indicator for an additional result along its theory of change. A program may not want to be held accountable for achieving a specific outcome, but at the same time, may want to know whether what is happening was related to that result and how/if it contributes to subsequent results.

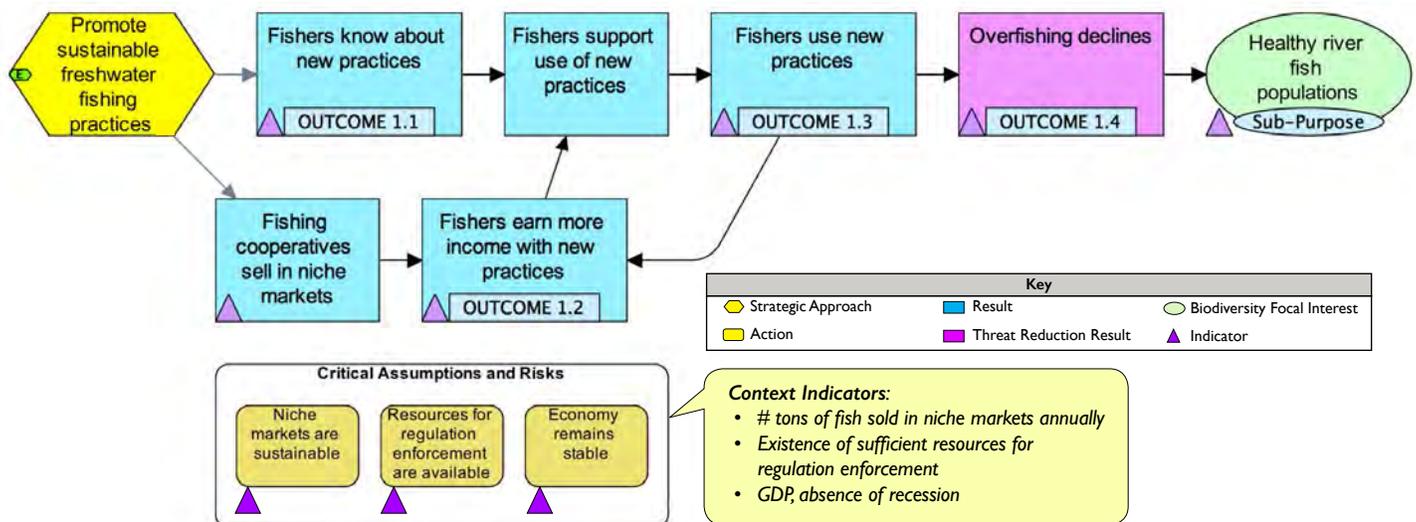
In the sustainable fishing results chain for the Grand River project example, the design team wanted to know if fishing cooperatives were selling in niche markets (Figure 3 on page 16). They included an indicator associated with this result (% of fishing cooperatives that are selling sustainably caught fish to high-end markets), even though they did not define an outcome statement linked to it. In this case, the design team felt it was important to include this indicator because, without it, they would not know whether their work with cooperatives was helping them to access niche markets.

Step 4(c): Consider Whether Critical Assumptions Need to be Monitored

It is important to establish indicators for the key results and (sub) purpose(s), but simply collecting data on those indicators is unlikely to give a design team a good understanding of what is happening. At the project level, the design team may also need to identify context indicators. These may include indicators for critical assumptions and risks that are beyond USAID’s control but are important to ensure that the project is successful (see bottom of). This will help determine whether factors outside of USAID’s manageable interest are influencing the effectiveness of the strategic approaches, even though there is a sound theory of change and actions are implemented well.

Module 2.4 of the USAID [PMP Toolkit](#) provides guidance on identifying context indicators. Context indicators are most often used at the strategy (CDCS) and project levels, although teams designing and implementing activities may elect or be required to monitor one or more important context indicators that could influence results they are trying to achieve.

Figure 4: Grand River Project Example – Results Chain with Context Indicators to Assess Critical Assumptions



DESIGN TIP 4: CONSIDER THE “UNITS” TO MONITOR

One of a design team’s most important decisions is to determine the monitoring units to analyze in order to know if a program is having the intended impact.

The unit defines the level of the results. Is it at the individual level? The household level? A community? Habitat type? A species? Or across an entire protected area? Is the program going to analyze weight, currency, or level of effort? Answering these questions will help determine the appropriate units to track.

When the units are clearly set, an MEL Plan can be set up to collect the right data to measure results in a consistent and meaningful way along the results chain. Keeping units straight is essential to linking the results achieved in one factor along the chain to the results achieved in others.

Definition of units also helps determine how data will be collected. The evaluation example in Section VII on page 30 provides greater detail on how defining the unit influences a program’s ability to draw meaningful conclusions from indicator data.

Step 5: Add Other Indicators (Including Standard Indicators), as Needed

It is useful to identify the key audiences who are interested in monitoring data and want to know how the project, activity, and/or strategic approach are doing. A design team might want to develop a table to list main audiences and the key indicators that are relevant to them. Table 4 on provides an example that builds off of Table 1 on page 8. While most of the indicators the design team has already identified should suit the audiences’ needs, and they should try to use existing indicators as much as possible, there may be a limited number of indicators that are of special interest and merit being added to the MEL Plan. USAID’s [PMP Toolkit](#) provides additional guidance on how to identify and describe audiences and information needs.

Table 4. Generic Template of Key Audiences and Indicators of Interest for Biodiversity Programming

Audience	What Audience Needs/Wants to Know	Indicators of Interest
Program Design and/or Management Team(s)	How is the project doing? Is the theory behind the results chain accurate? What is working, what is not, and why?	All indicators along results chain and those related to critical assumptions
Implementing Partners	How is the project doing? Is the theory behind the results chain accurate? What is working, what is not, and why?	All indicators along results chain and those related to critical assumptions
USAID Mission	How is the project doing? How is the project contributing to Mission Development Objectives and/or Intermediate Results? Are our assumptions correct about expected results? What is working, what is not, and why?	All indicators along results chain and those related to critical assumptions
USAID E3/FAB	What is working, what is not, and why? Is this strategic approach a good investment for achieving biodiversity conservation across Missions? What are some key stories from the project?	Outcome 1.4, Sub-purpose 1, Standard indicators EG10.2-1, EG10.2-3
USAID/Washington technical and operations staff	How is the Mission doing on its Development Objectives and/or Intermediate Results? What are some key stories from the project? How does USAID’s work contribute to U.S. Government aims?	Outcome 1.4, Sub-purpose 1, Standard indicators EG10.2-1, EG10.2-3
Host Country – Government	How is the project doing? What is working, what is not, and why? How is the project contributing to our country’s (natural) well-being?	Outcomes 1.2, 1.3, 1.4, Sub-purpose 1, critical assumptions, enabling conditions
Host Country – General Public	How is the project doing? What is working, what is not, and why? How is the project contributing to our country’s (natural) well-being?	Outcomes 1.2, 1.3, 1.4, Sub-purpose 1
U.S. Government/ Congress	How does USAID’s work contribute to U.S. Government aims?	Standard indicators EG10.2-1, EG10.2-3

The USAID Biodiversity Code requires that programs receiving Congressionally directed biodiversity funds “monitor indicators associated with a stated theory of change for biodiversity conservation results.” These indicators can be custom indicators, foreign assistance standard indicators, or a combination of both. Box 5 explains these USAID categories.

The most important step in identifying indicators to measure a strategic approach’s effectiveness is to use its results chain to identify key results and corresponding (sub) purposes, outcome statements, and indicators. When programming biodiversity funds, standard indicators are required as applicable. This means that a program should use standard indicators to measure some results in its results chain if these indicators are appropriate and relevant for the theory of change depicted by the results chain.

Biodiversity standard indicators tend to be general in scope, while custom indicators are specific to the results chain. A team may find that a standard indicator is a good option as a complement to a related custom indicator and will facilitate the aggregation (roll up) of data from results from multiple activities to project MEL Plans and/or from multiple projects to support CDCS PMPs. In addition to helping activity- and project-level results link to the CDCS-level Results Framework, the collection of biodiversity standard indicator data helps USAID document and report to the U.S. Congress the results of foreign assistance funds directed to biodiversity conservation. Figure 5 shows the example results chain with some standard indicators complementing the custom indicators developed in Step 4 on page 15.

Box 5. USAID Categories of Indicators

USAID identifies several types of indicators. The broadest level includes performance indicators and context indicators.

Performance Indicators measure expected outputs and outcomes of strategies, projects, or activities based on a Mission’s Results Framework or project or activity logic model. Performance indicators help answer the extent to which a Mission or Washington Operating Unit is progressing toward its objective(s). Performance Indicators can include:

- **Standard Foreign Assistance Framework (“F”) Indicators** – Indicators used in the annual Performance Plan and Report required of all Department of State and USAID Operating Units that program U.S. foreign assistance. Starting in 2016 all standard indicators are required as applicable.
- **Custom Indicators** – Indicators selected at the Mission level that are relevant within that setting for measuring performance. Most of the indicators developed from a results chain are likely to be custom indicators.

Context Indicators measure factors outside the control of USAID that have the potential to affect the achievement of expected results. Context indicators may be tracked at any level of a Results Framework or logic model.

See ADS 201 section on Monitoring Indicators for more detail on different types of indicators.

DESIGN TIP 5: CONSIDER WHICH TESTING APPROACH MAKES SENSE

Monitoring, evaluation, and learning efforts should focus on establishing causality between resources invested and observed changes. However, monitoring, evaluation, and learning resources are often limited, and it is neither possible nor advisable for programs to invest in a rigorous testing approach to collect precise data (as one might do in an impact evaluation).

There is a wide range of options available, depending on the level of rigor a design team wants and the precision of the question to address. These include a spectrum from the extremely challenging standard of experimental design (or random control trials) to the most often-used non-experimental design (no controls or comparison groups). Another dimension is when and how often a program collects monitoring data (ranging from a before-during-after to after-only approach).

In choosing a testing approach, design teams should think about the degree to which they need to establish causality (i.e., does one result in a results chain lead to the achievement of another result?). This will influence how they approach testing these relationships. If the program does not seek to establish causality but simply to answer a question such as, “Is our training program targeting the right fishers?” then an ex-post, non-experimental approach could be sufficient. In order to detect true change, programs need to collect data before implementation (baseline), during, and after implementation, at a minimum.

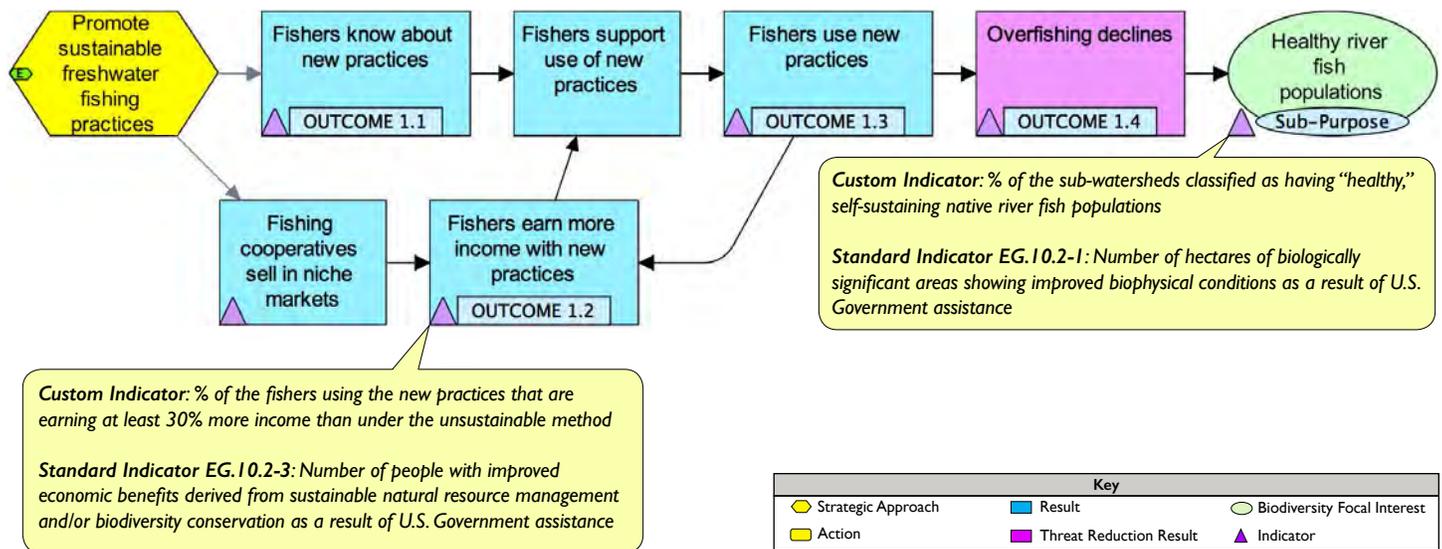
See USAID’s Technical Notes on [Impact Evaluation](#) and [Mixed-Method Evaluation](#) for a description of various approaches and design options.

LINKING CUSTOM AND STANDARD INDICATORS

As illustrated in Figure 5, custom indicators for a strategic approach under a particular project or activity tend to be worded very specifically so that it is clear what the program should measure to know if expected results are being met. Foreign assistance standard indicators, however, are very generally worded in order to encompass a variety of contexts. With a little extra effort in the program design and implementation phases, data from custom indicators can easily be converted into data that can feed into a standard indicator.

In Figure 5, the standard indicator EG.10.2-3 seeks to identify the number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation. This indicator does not identify exactly which type of people, and its [Performance Indicator Reference Sheet](#) (PIRS) has very generic categories of what qualifies as sustainable natural resource management and biodiversity conservation practices.

Figure 5: Grand River Project Example – Results Chain with Custom Indicators and Related Standard Indicators¹³



Consider three examples that could contribute to the standard indicator, “Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of U.S. foreign assistance:”

1. In the Grand River project example, if 500 fisher households, averaging five people per household, earn more money using sustainable fishing practices, then these 2,500 individuals should count toward the standard indicator.
2. If a different project had a strategic approach that helped 700 households, averaging seven people per household, in and next to a natural park buffer zone, develop ecotourism-oriented enterprises, then that program should report those 4,900 residents as contributing to the same standard indicator.
3. If another project supported a payment for ecosystem services system to reimburse 200 upstream farmer families, averaging five people per family, for good forest management practices, then those 1,000 farmer family members benefiting from the program would also contribute to the same standard indicator.

The USAID Mission could then combine the three project totals and report a total of 8,400 people with increased economic benefits derived from sustainable natural resource management and/or biodiversity conservation.

As design teams develop specific custom indicators, it is helpful to consider whether the custom indicators broadly align to a standard indicator and then ensure that they collect data and report on both the custom indicator and the standard indicator. Doing so will allow aggregation across programs and helps USAID assess achievements at a higher level.

¹³ Section 2.6.2 of the [Biodiversity Handbook](#) contains an additional example of a results chain with outcome statements and related indicators, as well as a variety of information on biodiversity monitoring considerations.

IV. USING RESULTS CHAINS FOR IMPLEMENTATION PLANS

A results chain and its associated components ((sub) purpose(s), outcome statements, actions, and indicators) provide program design teams with the raw materials to develop their program implementation plan¹⁴ and their MEL Plan. A results chain lays out the logic behind a strategic approach, but it does not provide details on how or when the design team will implement the necessary actions. To help translate the results chain into an implementation plan and MEL Plan, design teams must map out the specifics of what should happen, when it should happen, and who is responsible for making sure it happens (see Section VI on page 24 for more detail on developing an MEL Plan). Doing so can help produce summary implementation tables that all program stakeholders can easily read and understand. However, design teams should keep in mind that summary tables hide the complex relationships laid out in a results chain. To address this, design teams should keep their results chain close by when developing and putting into action their implementation and MEL Plans.

Information regarding implementation plans for project and activity levels is included in the Project Design and Implementation section of [ADS 201](#) and the Agency's Monitoring Toolkit. There are many models of implementation plan summary frameworks, and it is beyond the scope of this How-To Guide to describe them. However, monitoring and the corresponding analyses of biodiversity conservation strategic approaches take time. It is important for design teams to set aside enough time and resources when developing implementation plans to implement the strategic approach, as well as monitor key results and (sub) purpose(s) and analyze their monitoring results. The forthcoming *Biodiversity Activity Start-Up Packet* (2016) includes an example of a results chains-based activity work plan outline.

Many USAID projects have a logical framework as the basis of their program planning. The Annex on page 36 shows how a results chain could be translated into a logical framework, if a design team chooses to use that tool.

¹⁴ At the project level, the Implementation Plan would be an "Activity Plan," while at the activity level, the Implementation Plan would be the equivalent to the "Work Plan" agreed on between the implementing partner and the Agency.

V. HOW CAN RESULTS CHAINS BE USED IN IMPLEMENTING MECHANISM STATEMENTS/SCOPES OF WORK?

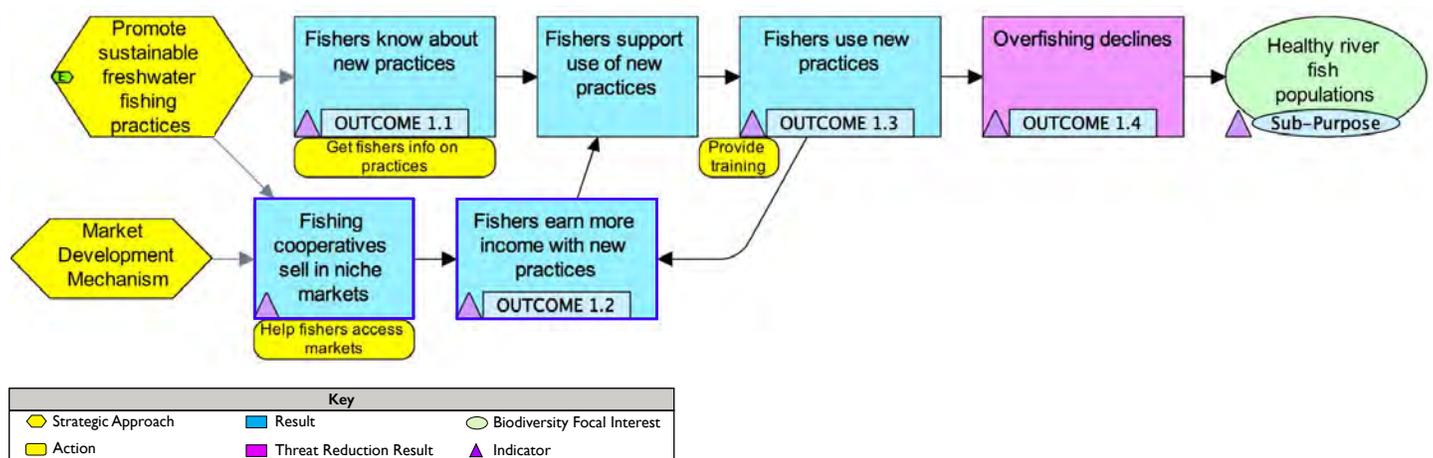
In order for potential implementing partners to make the most feasible and effective proposals possible, it is critical that the project's theory of change is clearly communicated in an implementing mechanism Statement of Requirements.¹⁵ Fully or partially developed results chains can be very useful tools for this.

Some USAID design teams have included the project-level situation model (see Biodiversity How-To Guide I) in the Scope of Work (SOW) to represent the problem statement and demonstrate causal relationships and USAID's manageable interest. According to ADS 201, "In order to ensure that implementing partners have as much information as possible about the project to which the activity contributes, Missions and Washington Operating Units should provide the relevant project's logic model that illustrates the project's theory of change as an attachment to solicitations and/or awards." The activity SOW could also include the project results chain(s) and request that the offerors clarify how their proposal would contribute to and/or improve the results chain. This could happen in a variety of formats, depending on the procurement tools used and the level of development of the program results chain(s). For example, the SOW could include:

1. A high-level results chain, with a request that offerors refine the chain; or
2. A full results chain, as developed by the USAID design team, with a request that offerors define what actions they propose that will contribute to that results chain; or
3. The general expected results (especially threat reduction and biodiversity focal interest results) and priority strategic approaches, with a request that offerors fill in the detail, therefore developing their own activity-level results chains that reflects their in-depth, on-the-ground knowledge of the context. This activity-level results chain could illustrate how the proposed activity contributes to the project-level results chain.

Regardless of what level of detail is shared, the SOW could require that applicants describe how the implementing mechanism would address and contribute to specific outcome statements and learning questions in the PAD's MEL Plan. Depending on the USAID project's Acquisition & Assistance plan, an implementing mechanism might take responsibility for one or multiple strategic approaches and associated expected results.

Figure 6: Grand River Project Example – How Market Development Strategic Approach Could Contribute to Sustainable Fishing Practices Strategic Approach



*Highlighted blue boxes identify the portion of the overall results chain to which the Market Development Strategic Approach would contribute.

¹⁵ Office of Acquisition and Assistance Statements of Requirements include Scopes of Work, Statements of Work, Performance Work Statements, and Statement of Objectives. In this How-To Guide, the use of SOW may refer to all statement of requirement types.

Whatever the mix of implementing partners and mechanisms, the design team can use the SOW in the selected procurement tool for a new implementing mechanism to clarify expectations and stimulate explicit communication with implementing partners about how they would operationalize the concepts laid out in the results chain(s) of the associated USAID project. This process could facilitate discussions between USAID and implementing partners regarding post-award work plan and MEL Plan development, as well as important adjustments to the project results chain(s), as recommended in the ADS 201 section on Amending and Updating the PAD. The upcoming *Biodiversity Model Procurement Language* (2016) resource includes illustrative procurement language for a Biodiversity Activity SOW.



School children with saiga books from the SCAPES¹⁶ program in Ustyurt landscape in Uzbekistan and Kazakhstan. Photo credit: Shari Bush

Although ADS 201 does not require offerors to submit an activity logic model of any type in their proposals, it does recommend such requests and the use of activity logic models to address a number of situations (see the section on Acquisition and Assistance Design Process in ADS 201).

In the Grand River project example (Figure 6 on page 22), the offeror could design their proposal to outline how it will help fishers access markets and how they will ensure that Outcome 2 – By 2016, at least 80% of the fishers using the new practices are earning at least 30% more income than under the unsustainable methods (and no one is earning less) – is met. The offeror could also take the markets portion of the project results chain and develop it in more detail to make the causal logic even more explicit and clarify the key actions needed to make sure that this new strategic approach can achieve the desired results. All of this information could feed directly into the project MEL Plan, while also being relevant and valuable for an activity Work Plan and activity MEL Plan.

¹⁶ For more information on SCAPES, visit their [website](#).

VI. DEVELOPING A MONITORING, EVALUATION, & LEARNING (MEL) PLAN

The design team has now defined the sub-purpose(s) and outcome statements, identified which indicators to measure, and organized the program for implementation. These constitute key elements of the monitoring portion of an MEL Plan.¹⁷ To complete this monitoring portion, the design team needs to include information about data sources, collection frequency, collection responsibilities, and the establishment of baselines and targets (see the Monitoring, Evaluation, and Learning Management section of [ADS 201](#)). When collecting data, the design team should keep in mind USAID's data quality standards (Box 6).

As of publication of this How-To Guide, USAID was preparing guidance on developing MEL Plans for projects and/or activities. Nevertheless there are general principles for how monitoring, evaluation, and learning should happen – for instance, design teams should consider monitoring and evaluation during the project design phase, and indicators should be developed based on a sound theory of change ([ADS 201](#), [USAID Evaluation Policy](#), and [USAID Biodiversity Policy](#)).

Box 6. Data Quality Standards

USAID policy ([ADS 201](#)) requires that monitoring data used is of “sufficiently high quality to support the appropriate level of management decisions” and that the following quality standards are addressed:

- **Validity:** Data should clearly and adequately represent the intended result
- **Integrity:** Data collected should have safeguards to minimize the risk of transcription error or data manipulation
- **Precision:** Data should have a sufficient level of detail to permit management decision-making
- **Reliability:** Data should reflect stable and consistent data collection processes and analysis methods over time
- **Timeliness:** Data should be available at a useful frequency, should be current, and should be timely enough to influence management decision-making

For more information, see [USAID's Data Quality Assessment Checklist](#).

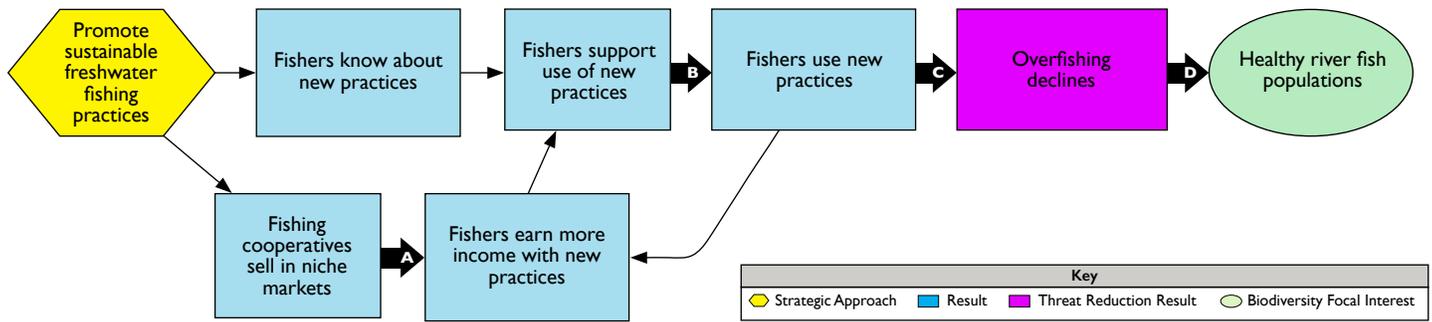
A fundamental part of an MEL Plan is clearly specifying the learning questions a program seeks to answer. Using the Grand River project example, Figure 7 on page 25 shows the start of an MEL Plan for the sustainable freshwater fishing practices strategic approach. This plan identifies potential learning questions. It illustrates how learning is based on testing whether one result in the results chain leads to a subsequent result in the chain – and then whether that subsequent result leads to yet another result (and so on). In essence, learning begins with the analysis of the program's theory of change and the determination of the degree to which monitoring data collected validate or invalidate it. Learning also involves analyzing why some relationships hold and why others do not. Learning questions should be tailored to go beyond yes/no answers about whether X result led to Y change in the theory of change and should focus on priority learning objectives in the portfolio and country context. Answering a learning question may involve both quantitative and qualitative methods and multiple data points.

A full MEL Plan should include more detail about data collection, when the review of progress along its results chain will occur, and explicit pathways to integrate (adapt) what is learned back into ongoing implementation or future programs. Table 5 on page 28 provides an extract of a monitoring plan for the Grand River project example.¹⁸ Notice that some results listed in this monitoring plan have a standard indicator (in italics) in addition to the custom indicator (see Step 5 in Section III on page 18). For activity design, the MEL Plan is prepared by the implementing partner based on their approved work plan, which can be supported by a relevant results chain(s) (see Section V on page 22).

¹⁷ Refer to Box 1 on page 7 for definitions of monitoring, evaluation, and learning.

¹⁸ The partial monitoring plan presented as Table 5 is a teaching example intended to highlight how a results chains-based planning provides vital information for a Monitoring Plan. The content of the table should not be interpreted as an endorsement of any technical approach or logic (including baseline and target numbers) used to build it.

Figure 7: Grand River Project Example – Learning Questions for Sustainable Fishing Practices Strategic Approach



Grand River Project Example – Potential Learning Questions

A	Did fishers involved in the cooperatives earn more income? Why (or why not?)
B	If fishers know about and support sustainable freshwater practices and if fishers' income increases using those practices, how likely are they to adopt the practices? Were any other factors important in getting fishers to adopt new practices?
C	Did the use of new fishing practices lead to a decline in overfishing across the project scope? Is 60% of fishers using the sustainable freshwater fishing practices sufficient to lead to a 25% reduction (baseline 2014) in key identified species caught outside of established limits? Did any other factors contribute to the decline of overfishing?
D	Does a reduction in overfishing lead to healthy river fish populations? Is a 25% reduction in overfishing sufficient to ensure that 80% of sub-watersheds have healthy, self-sustaining native river fish populations?

As part of a final monitoring plan,¹⁹ project design teams and activity implementing partners should prepare a [PIRS](#) for each selected performance indicator. The following issues, among others, need to be addressed:

- **Identify the indicator**, its link to the intended result being measured, and, if a standard indicator, any links to the PPR and foreign assistance framework.
- **Provide a detailed description** of the indicator including a precise definition, the unit of measure, any required or optional disaggregation, and the rationale/justification for the indicator.
- **Provide a plan for data collection by USAID**, including the data source (what), method of data collection and construction (how), reporting frequency (when), and the individual responsible at USAID (who).
- **Note any known data quality issues** with the dates of any past data quality assessments (DQAs), planned dates for future DQAs (optional), and known data limitations.
- **Include targets and baseline information** to articulate the baseline timeframe (optional) and the rationale for the performance targets (optional).
- **Identify any changes to the indicator**, including the date of the change, the specific change made, and the rationale for the change. Only list changes to how the indicator is defined or how the data are collected, not changes in the data itself.
- **Include other notes and the date the sheet was last updated** to keep a record of changes or other critical information.

For activities, implementing partners prepare the PIRs, and USAID activity management staff approve them. USAID project and activity managers should have conversations with implementing partners post-award in order to discuss and refine indicators to make sure that they are relevant for both the activity and the corresponding project. Implementing partners would then report on these relevant indicators, using the PIRS to guide data collection, analysis, and reporting.

¹⁹ PIRs do not need to be prepared for illustrative indicators in a PAD MEL Plan.

The USAID Program Cycle emphasizes collaborating, learning, and adapting – important elements of an adaptive management approach. When practicing adaptive management, project and activity design teams should plan for monitoring, evaluation, and learning during program design – it is not something to consider only after programs have been planned and implementation is underway. As such (and as discussed in Section IV on page 21), it is important that a design team include time for monitoring and learning tasks in the PAD Financial Plan and Cost Estimate and in implementing partners' work plans and budgets at the activity level ([ADS 201](#)). Likewise, USAID Agreement Officer's Representative (AORs)/Contracting Officer's Representatives (CORs) and activity managers are required to guide implementing partners to identify the costs of data collection, analysis, and reporting as separate line items in their budgets to ensure adequate resourcing of monitoring actions ([ADS 201](#)).



Managing marine protected areas in Fiji helps to protect biodiversity. Photo credit: Nick Hobgood

Table 5. Grand River Project Example – Partial²⁰ Monitoring Plan for Sustainable Fishing Practices Strategic Approach

Indicator (Standard Indicators in italics)	Baseline & Targets	Methods & Data Source	When?	Who Collects Data?	Who Analyzes Data?	Comments
Purpose. Ecological integrity of priority biodiversity sites restored for current and future generations						
% of priority areas in country X classified as in good or very good condition	Baseline 2015: 20% Target 2025: 50%	Consult Ministry of Environment's Priority Areas Status Dashboard	Baseline and every 5 years thereafter	Environment Project Manager	Environment Project Manager	
<i>Number of hectares of biologically significant areas showing improved biophysical conditions as a result of U.S. Government assistance</i>	<i>Baseline 2015: 50,000 hectares</i> <i>Target 2025: 125,000 hectares</i>	<i>Consult Ministry of Environment's Priority Areas Status Dashboard</i>	<i>Baseline and every 5 years thereafter</i>	<i>Environment Project Manager</i>	<i>Environment Project Manager</i>	<i>Need to work with Ministry to sort out U.S. Government funding relative to other countries</i>
Sub-Purpose 1. Healthy River Fish Populations. By 2025, more than 80% of the sub-watersheds have healthy, self-sustaining native river fish populations						
% of sub-watersheds of the Grand River classified as having healthy, self-sustaining native river fish populations	Baseline 2015: 30% Target 2025: 80%	Research (biological surveys) from regional universities	Baseline and every 5 years thereafter	Graduate students at local university	Graduate students at local university	Implementing partner will use relevant data from university and not do any monitoring itself of the status of fish populations. Indicator is of special interest to donor.
OUTCOME 1.1. Fishers know about new practices. By 2015, at least 90% of fishers in identified sub-watersheds of the Grand River can name & describe at least two sustainable fishing practices						
% of fishers in identified sub-watersheds of the Grand River who can name and describe at least two new sustainable freshwater fishing practices	Baseline January 2015: 10% Target December 2015: 90%	Household survey (questionnaire)	Baseline and December 2015 (after outreach and capacity-building)	Implementing partner field staff	Implementing partner MEL coordinator	
<i>Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of U.S. Government assistance</i>	<i>Baseline January 2015: 0</i> <i>Target December 2015: 500</i>	<i>Consult program training records</i>	<i>December 2015</i>	<i>Implementing partner field staff</i>	<i>Implementing partner MEL coordinator</i>	
Output 1.1.1: Workshops on fishing practices conducted						
# of meetings or workshops conducted	Baseline: 0 Target December 2015: 10	Review project tracking records	December 2015	Implementing partner field staff	Implementing partner MEL coordinator	

²⁰ To save space, this table only shows the main indicators used for each outcome or (sub) purpose and only provides one example of how the plan could also include output level data.

Indicator (Standard Indicators in italics)	Baseline & Targets	Methods & Data Source	When?	Who Collects Data?	Who Analyzes Data?	Comments
Output I.1.1: Workshops on fishing practices conducted						
% of fishers contacted through outreach efforts	Baseline: 0 Target December 2015: 100% of fishers	Review project tracking records	December 2015	Implementing partner field staff	Implementing partner MEL coordinator	
OUTCOME I.2. Fishers earn more income with new practices. By 2016, at least 80% of the fishers using the new practices are earning at least 30% more income than they were before they started using the new practices (and none are earning less).						
% of fishers using new practices who are earning at least 30% more income than they were before they started using the new practices	Baseline 2015: 0% of program participants Target 2016: 80%	Household survey (questionnaire)	2016, 2020	Implementing partner sustainable markets staff	Implementing partner MEL coordinator	
<i>Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of U.S. Government assistance</i>	Baseline 2015: 0 program participants Target 2016: 450 program participants	<i>Consult program training records</i>	<i>Baseline and 2016</i>	<i>Implementing partner field staff</i>	<i>Implementing partner MEL coordinator</i>	
OUTCOME I.3. Fishers use new practices. By 2017, at least 60% of the fishers in identified sub-watersheds of the Grand River are using only sustainable freshwater fishing practices						
% of the fishers in sub-watersheds of the Grand River who are using only sustainable freshwater fishing practices	Baseline 2015: 5% (fishers already using practices prior to implementation) Target 2017: 60%	Review registry of fishing gear on boats before they leave on fishing expeditions	Baseline, 2017, 2020	Implementing partner fisheries biologist	Implementing partner fisheries biologist	Indicator is of special interest to donor
		Random periodic checks of fishing boats	Baseline, 2017, 2020	Implementing partner fisheries biologist	Implementing partner fisheries biologist	
OUTCOME I.4. Overfishing declines. By 2018, the amount (in tons) of key identified species caught outside of established harvest quotas declines by at least 25%, as compared to 2015 levels.						
# of tons of key identified species caught outside of established harvest quotas	Baseline 2015: 300,000 tons (across all species) Target: 225,000 tons	Review fisheries agency's records of fish landings Review fishing cooperative's records of fish brought in for processing and sale	Baseline, 2018, 2020	Implementing partner fisheries biologist	Implementing partner fisheries biologist	

VII. PULLING IT ALL TOGETHER – LINKING MONITORING, EVALUATION, & LEARNING

USAID’s Program Cycle and its approach to improving development practice through strengthened program design, learning, and adaptive management rely on strong and clear linkages among monitoring, evaluation, and learning. Given Agency requirements, USAID managers responsible for designing, monitoring, and evaluating programs often feel compelled to develop separate indicators for each of these functions. However, as demonstrated in the previous sections, these three functions often draw on the same indicators because they are based on the same results chain to depict desired outcomes. Managers can save considerable time and effort by not developing different indicators for each function.

In this section, the Grand River project example results chain for the sustainable freshwater fishing practices strategic approach demonstrates how the same theory of change, outcomes, and indicators can be used for monitoring, evaluation, and learning. For each use, we define:

- Aim of the task
- What USAID managers want to know (i.e., learning questions)
- How managers use the results chain, outcomes, and indicators for the task
- The task’s final output

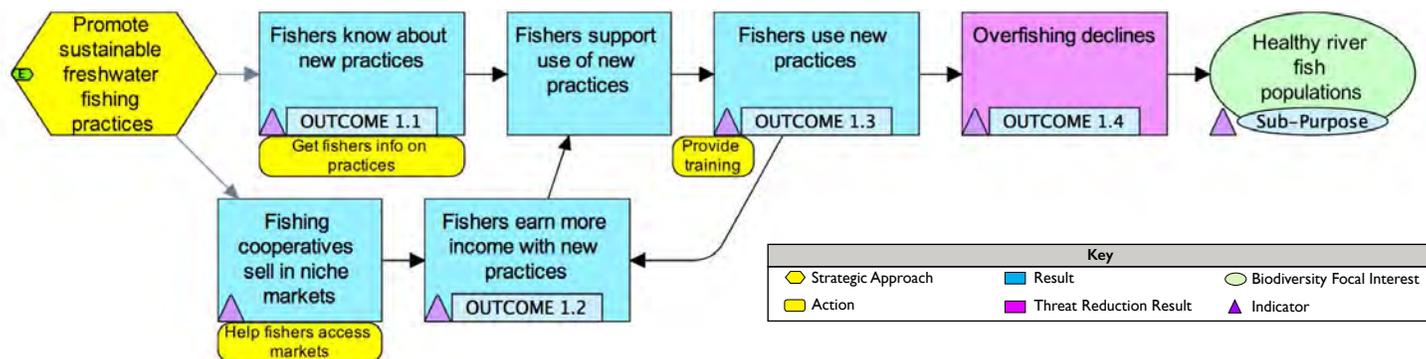
The Grand River project example scenarios presented in the following pages are meant to be illustrative – they do not cover the full range of how a results chain and associated outcome and indicator data could be used to fulfill the different but related aims of monitoring, evaluation, and learning.

MONITORING – USING A RESULTS CHAIN

The aim of monitoring in the Grand River project example

The Grand River project example managers want to check on an annual basis whether emerging results support their original underlying assumptions and take corrective action if they do not (Figure 8). In addition, they want to make sure their data collection efforts (through performance monitoring) are on track to contribute to planned midterm and end-of-project performance evaluations.²¹ Lastly, managers want to verify that data collected by implementing partners at the activity level can be scaled up to the project level.

Figure 8: Grand River Project Example – Using Complete Results Chain for Monitoring



²¹ USAID defines performance monitoring as the monitoring of changes in performance indicators to reveal whether desired results are occurring and whether implementation is on track. USAID describes performance evaluations as focusing on descriptive and normative questions: what a particular project or program has achieved (either at an intermediate point in execution or at the conclusion of an implementation period); how it is being implemented; how it is perceived and valued; whether expected results are occurring; and other questions that are pertinent to program design, management and operational decision making. Performance evaluations often incorporate before-after comparisons, but generally lack a rigorously defined counterfactual (see [USAID Evaluation Policy](#)). As described in this How-To Guide, the same indicators from the results chain could be used for performance monitoring and performance evaluation.

What USAID managers want to know from monitoring

Program managers want to know if their program is on track and achieving results as expected. More specifically, they want to know if:

1. The logic (i.e., the underlying assumptions) of the results chain holds;
2. Their outcome statements seem to be accurate and feasible as implementation progresses; and
3. The indicators are adequately capturing changes in results in the chain so that they may be used subsequently for impact evaluation and learning.

How USAID managers use the results chain, outcomes, and indicators for monitoring

Mission staff will use the entire results chain, outcomes, and associated indicators to monitor implementation of the project and activities, link activity-level monitoring to project- and PMP-level monitoring, and inform preparation of annual PPRs and contributions to Portfolio Reviews. Implementing partners will use the results chains, outcomes, and indicators to prepare work plans, inform their annual and quarterly reporting to USAID and, if necessary, communicate unexpected results or developments.

The final output from monitoring

The final product would include an annual monitoring report (PPR, contribution to Portfolio Review, or USAID Annual or Quarterly Progress Report on implementing mechanisms) with recommendations for changes to the results chain, outcome statements, indicators, strategic approaches, and/or actions for the remaining years of the project.

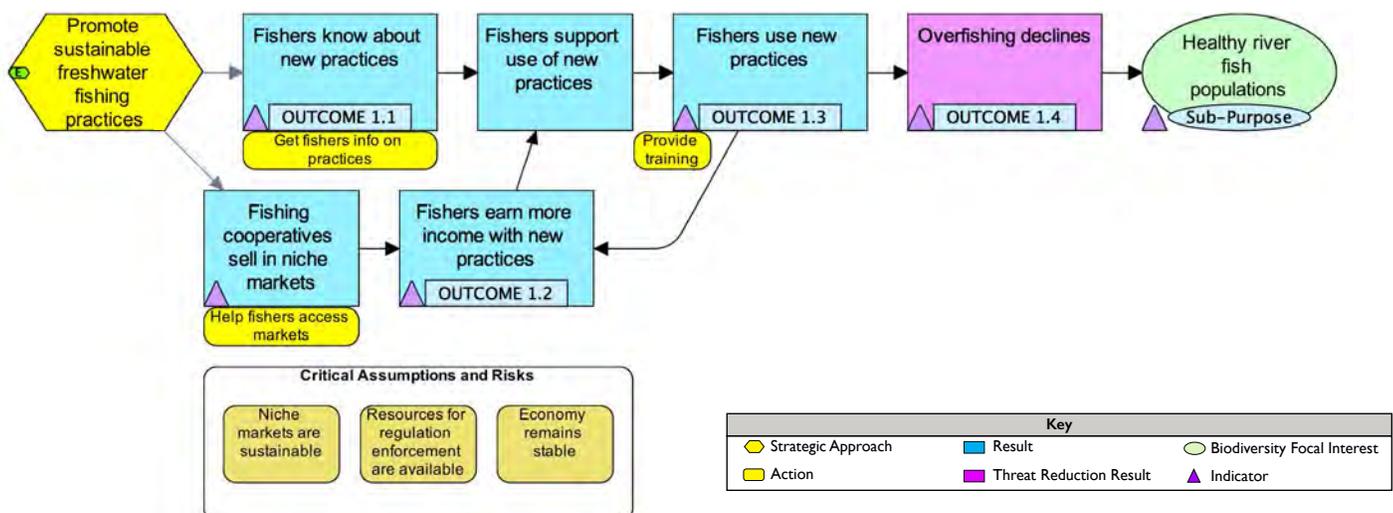
USAID Acquisition & Assistance procedures place some limitations on the ability of program managers to incorporate recommendations for adaptation into ongoing implementing mechanisms. However, there is growing interest in finding ways to use evidence during the life of a program to improve outcomes. The [Mission Order on Performance Monitoring](#) states that, following a PPR or Portfolio Review, the COR/AOR should analyze the information and determine if any changes are necessary to work plans, budgets, and/or schedules. These analyses can be done informally, in collaboration with the relevant stakeholders, such as the implementing partner and host government staff. Any changes to work plans, budget and/or schedules for Acquisition & Assistance awards must be within the terms and conditions of the award.

IMPACT EVALUATION – USING A RESULTS CHAIN

The aim of the evaluation in the Grand River project example

The Grand River project example team wants a clear and objective assessment regarding the impact of the use of new fishing practices (supported by USAID) on fishing intensity (Figure 9).

Figure 9: Grand River Project Example – Using Complete Results Chain for Impact Evaluation



What USAID managers want to know from the evaluation

The Grand River project example managers want to answer the following three specific evaluation questions at the end of the project (see Design Tip 1 on page 12 for suggestions on how to develop good monitoring, evaluation, and learning questions):

1. Did fishers involved in the cooperatives earn more income?
2. Did these fishers (involved in a cooperative) who earned more income support the use of sustainable practices more than those who were not involved in the project?
3. Did the use of new fishing practices lead to a decline in unsustainable fishing practices across the project scope?

These evaluation questions were developed during the project design, in accordance with the USAID's [ADS 201](#) which states that “identifying key evaluation questions at the outset [of program design] will both improve the quality of... project design and guide data collection during implementation.”

How USAID managers use the results chain, outcomes, and indicators for the evaluation

Grand River project example managers could commission an impact evaluation to compare fishers involved in the project with fishers who are not involved in the project using a quasi-experimental evaluation design.²² To do this, the evaluator would select a fixed number of fishers from the cooperative and match them to an equal number of fishers of equivalent profile who were not participants in the cooperative to see if those in the cooperative earned more income through their involvement. Using this same sampling and evaluation approach, evaluators could also determine if fishers involved in the cooperative used new practices more than those fishers who were not involved in the cooperative, and if unsustainable fishing declined across the project scope as a result of USAID's investment.

To answer these specific evaluation questions and using the results chain, Grand River project example managers will look exclusively at the following three factors and their related outcome statements and indicators in the chain:

- Fishers use new practices
- Fishers earn more income with new practices
- Overfishing declines

In order to interpret the results of their analysis, however, managers will need to go back to their analysis of critical assumptions and risks (Step 4 (c) on page 17) to determine if they must collect any other data to help understand what is happening. For the Grand River project example, the design team will want to be aware of all other sources of income available to fishers and determine the extent to which these influence use of new practices or overfishing.

In impact evaluations in particular, design teams must be aware of the issue of units: units that are relevant to each outcome or indicator associated with a particular result, and the relationship of units across results in the results chain. Often, there are multiple units embedded in the same result. For example, one indicator from the Grand River project example results chain is:

Indicator for Outcome 2: % of fishers using new practices who are earning at least 30% more income than they were before they started using the new practices

One obvious unit to measure is “fishers.” This is the population where some change in knowledge, attitudes, and behavior is expected. An additional unit in this example is related to “income.” Income can be measured in many ways, but one option may be to designate “income measured in U.S. dollars” as the unit.

To the extent possible, units should be consistent across results in a results chain to facilitate analysis. If the units change from one factor to the next, analyzing the assumptions that link two or more factors becomes challenging. If, however, units do change (or if multiple units are relevant) along the results chain, then harmonization of units is particularly

²² For more information on the details of setting up an impact evaluation using this kind of design, see [USAID's Technical Note on Impact Evaluation](#). In quasi-experimental evaluation design, the sample size, and how matching is conducted are two critical issues.

important to determine what level of change might be expected in one result in order to see meaningful or significant change in a subsequent result. In the Grand River project example, project managers might find that their project has been successful changing the fishing habits of 1,000 fishers – a seemingly significant amount. But, what if the project area included a total population of 10,000 fishers? Changing the fishing behavior of only 10% of all fishers may not be enough to reduce the amount of unsustainable fishing pressure as represented by the number of tons of fish caught (a different unit) across the region. As such, investing in this strategic approach may be an inefficient use of program funds, even though the approach was successful in changing the fishing habits of individual fishers. That is why setting good outcome statements (Step 3 on page 12) is so vital. The outcome statements developed earlier for the Grand River project example assume that there has to be a critical mass and minimum percentage or threshold of the entire fisher population using new practices in order for overfishing to decline and healthy fish populations to be maintained.

By paying close attention to units (in this example, both the number of fishers – participants and non-participants – and the number of tons of key species caught), USAID program managers and implementing partners can determine if their strategic approach is leading to desired changes, even if a critical mass within a result has not yet been achieved. Conversely, it can help them determine if the desired change did not occur, despite meeting/exceeding the determined critical mass.

By taking the above approach, the example design team can answer the three questions that drive this evaluation:

1. Did fishers involved in the cooperatives earn more income?
2. Did these fishers (involved in the cooperatives) who earned more income support the use of sustainable practices more than those who were not involved in the project?
3. Did the use of new fishing practices lead to a decline in unsustainable fishing practices across the project scope?

The final output from the evaluation

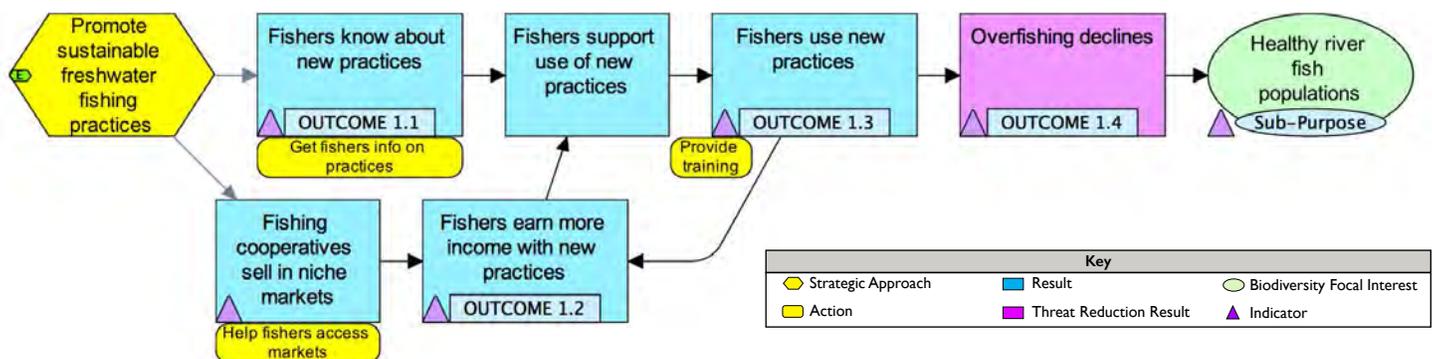
An evaluation report should demonstrate whether there is evidence supporting the assumptions described in the “What USAID program managers want to know from the evaluation” section above.

LEARNING – USING A RESULTS CHAIN

The aim of learning in the Grand River project example

The Grand River project example team wants to systematically document and reflect on lessons related to the strategic approach “promote sustainable freshwater fishing practices” in order to improve ongoing and future program design and implementation (Figure 10).

Figure 10: Grand River Project Example – Using Complete Results Chain for Learning



What USAID managers want to know from learning process

Program managers and implementing partners want to know what is working, what is not working, and why as they implement their strategic approaches. They may also want to understand how their experience compares to similar programs implemented by USAID and others around the world.

How USAID managers use the results chain, outcomes, and indicators for learning

The practice of developing and implementing learning agendas has gained momentum within USAID and is evolving quickly. Missions must develop an MEL Plan for each project and activity. If a results chain is the logic model of choice during planning, Missions will find that results chain and associated outcomes and indicators very helpful for developing an MEL Plan that identifies knowledge gaps and learning questions, ensures that data are collected to address those questions, and specifies how findings will be shared. At the activity level, managers and implementing partners should use their results chains and indicator data to capture lessons and contribute to activity-, project-, and Mission-level learning efforts, as well as other communities of practice and learning in the Agency.

The results chains, outcomes, and indicators can also support learning at a cross-Mission scale. In this instance, USAID staff can participate in learning networks or communities of practice to create and implement a shared learning agenda across Operating Units working with the same or similar theories of change, identifying common questions tied to those theories of change, and using similar indicators (Box 7). These learning networks or communities of practice could implement joint or collaborative analyses that lead to improved and more refined understanding of the conditions under which particular strategic approaches work most effectively and where they may not work at all.

Incorporating local experience and knowledge and bringing in the views of other sectors can greatly enhance learning. Results chains can be an easy-to-communicate and versatile common platform to facilitate the stakeholder input, collaboration, and buy-in needed to implement, learn from, and improve strategic approaches.

Learning can happen independent of monitoring and evaluation. However, if well-structured around theories of change, monitoring and evaluation can contribute significantly to learning.

Box 7. USAID Conservation Enterprises Learning Group

Knowledge management is central to learning. Communities of practice built around particular approaches or themes work best when they have a common language and common platform. An example is E3/FAB's learning group on conservation enterprises,²³ which developed a generic theory of change (depicted in a results chain), provided definitions of terms, completed a literature review, and set up a web platform for engagement.

The final output of the learning process

The final product from the learning process is an enhanced evidence base for the effectiveness of different strategic approaches. This evidence base is developed by collecting, analyzing, and sharing information and findings in a systematic fashion. Learning products could include documents, videos, or contributions to knowledge management portals or websites that describe lessons learned from USAID experience implementing a particular strategic approach.

²³ For more information see Conservation Enterprises: Using a Theory of Change Approach to Examine Evidence for Biodiversity Conservation (USAID, 2016), and Cross-Mission Learning Agenda for Conservation Enterprises (USAID, 2016)

VIII. CONCLUDING THOUGHTS

This How-To Guide is designed to help USAID biodiversity conservation program design teams and implementing partners use results chains to clearly articulate outcome statements and develop indicators for managing biodiversity conservation programs. These are crucial adaptive management concepts that help integrate program design, management, and monitoring to test assumptions, learn, and adapt actions as design teams and implementing partners seek to implement the USAID Program Cycle and the Biodiversity Policy. This How-To Guide also strives to help design teams, program managers, and implementing partners understand how the same indicators, derived from the same results chains, can be used for multiple purposes including monitoring, evaluation, and learning across programmatic scales including, in particular, between projects and activities.

This guide is the third Biodiversity How-To Guide in a series developed to help biodiversity program design teams and managers operationalize adaptive management in the context of the USAID Program Cycle. The series walks design teams and managers through a systematic approach to conceptualization and design (*Biodiversity How-To Guide 1: Developing Situation Models in USAID Biodiversity Programming*), articulation of assumptions (*Biodiversity How-To Guide 2: Using Results Chains to Depict Theories of Change in USAID Biodiversity Programming*), and determination of the specific indicators managers should follow in order to determine the efficiency and effectiveness of their programming (this How-To Guide). The three How-To Guides should be used sequentially and as such, the steps and concepts presented in this How-To Guide are all based on concepts presented in the first two. The primary audience of these guides is USAID Mission biodiversity program design teams, managers, and implementing partners. Moreover, these How-To Guides are designed to align with and contribute directly to a Mission's CDCS Results Framework, regardless of the thematic focus.

The three Biodiversity How-To Guides will contribute significantly to USAID's continued quest to improve biodiversity programming across the Agency. USAID staff and implementing partners are encouraged to use these How-To Guides, test them, and provide feedback (fab@usaid.gov) on how they can be improved over time.

RESOURCES

SELECTING MONITORING METHODS

USAID 2013. [PMP Toolkit](#) (especially Annex 8) provides guidance on a select number of data collection methods. See also Module 2.6 Reference Sheets for Performance and Context Indicators.

USAID 2013. [Discussion Note: Complexity-aware Monitoring](#) outlines general principles and promising approaches for monitoring complex aspects of USAID development assistance.

EVALUATION DESIGN INCLUDING SELECTING METHODS AND UNITS

USAID (2015). Evaluation Toolkit provides guidance on evaluation design and other considerations.

USAID 2013. [Technical Note: Impact Evaluations](#) outlines key considerations that USAID staff and evaluators should take into account when planning for and designing impact evaluations.

USAID 2013. [Technical Note: Mixed Method Evaluations](#) provides guidance to USAID staff and partners on how mixed-method evaluations are conducted and important considerations when designing a mixed-method evaluation.

LEARNING IN THE BIODIVERSITY CONSERVATION CONTEXT

USAID. 2016. *Using a Theory of Change Approach to Examine Evidence for Biodiversity Conservation*. USAID/E3/FAB.

USAID. 2016. *Cross-Mission Learning Agenda for Conservation Enterprises*. USAID/E3/FAB.

SELECTING BIODIVERSITY INDICATORS AND DEVELOPING MEL PLANS

Noss, R. 1990. Indicators for Monitoring Biodiversity: A Hierarchical Approach. *Conservation Biology*, 356-357.

Tukey, J. 1962. The future of data analysis. *Annals of Mathematical Statistics*, 13.

GENERAL GUIDANCE ON PROGRAM CYCLE IMPLEMENTATION

USAID. 2012. [Program Cycle Learning Guide](#). Bureau of Policy, Planning, and Learning

USAID. 2013. [PMP Toolkit](#). Bureau of Policy, Planning, and Learning

USAID. 2014. [Biodiversity Handbook](#). Chapter 2.

USAID. 2016. [ADS Chapter 201](#). Program Cycle Operational Policy.

USAID. 2016. [Biodiversity How-To Guide 1: Developing Situation Models for USAID Biodiversity Programming](#). USAID/E3/FAB.

USAID. 2016. [Biodiversity How-To Guide 2: Using Results Chains to Depict Theories of Change in USAID Biodiversity Programming](#). USAID/E3/FAB.

USAID. (2016 forthcoming) *Biodiversity Activity Start-Up Packet*. USAID/E3/FAB.

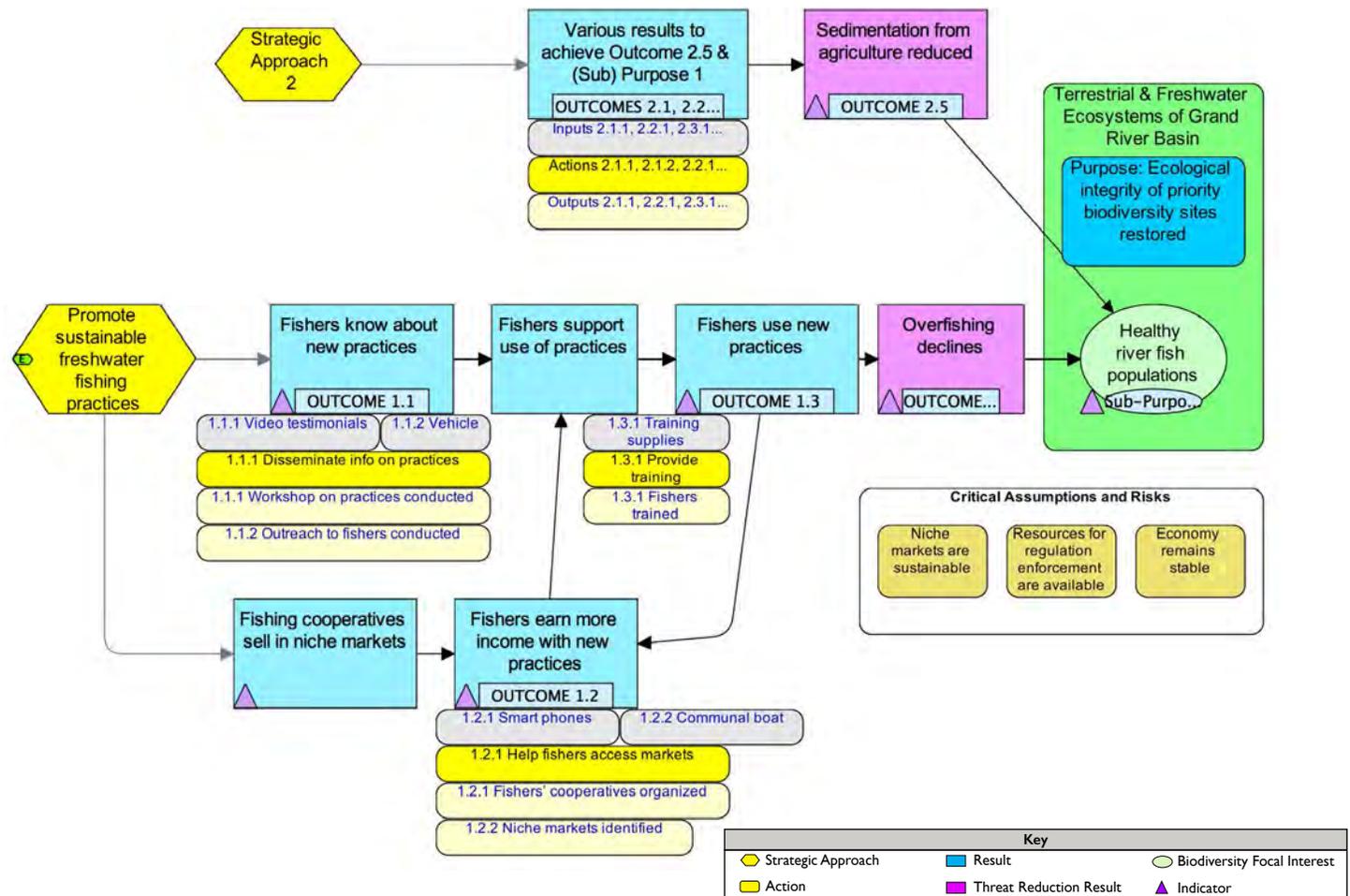
USAID. (2016 forthcoming) *Biodiversity Model Procurement Language*. USAID/E3/FAB.

WHAT IS THE RELATIONSHIP BETWEEN A RESULTS CHAIN AND A LOGICAL FRAMEWORK?

According to the Agency’s updated (2016) Program Cycle Operational Policy (ADS 201), all USAID projects must develop a logic model that depicts the project’s theory of change. For the first years of the Program Cycle, a logical framework was the required logic model, but the updated ADS 201 gives design teams the option of using the logic model of their preference (see forthcoming How-To Note on Logic Models). Therefore, results chains and logical frameworks are both types of logic models that can, individually or in combination, assist in required depiction of a program’s theory of change. There are some important conceptual and practical links between a results chain and a logical framework, but at this stage, some questions may still remain unanswered regarding how these two tools relate to or complement one another. At a general level, results chains are often more detailed than a typical logical framework matrix. However, design teams can convert them to a logical framework if they prefer.

Figure A1 illustrates the Grand River project example results chain with some additional components that are not typically included in a results chain. Also represented in Figure A1 is another (incomplete) strategic approach, related to agriculture sedimentation reduction and its associated draft results chain, to show how multiple strategic approaches can contribute to a single (sub) purpose. Although results chains do not include inputs²⁴ and outputs, they are included in this figure to help illustrate the relationship between a results chain and a logical framework, as well as how a results chain will provide key information needed for the development of a logical framework and the related work plans and MEL Plans.

Figure A1: Grand River Project Example – Results Chain with Additional Logical Framework Components



²⁴ ADS Glossary (2014) clarifies that an input is “a resource, such as technical assistance, commodities, training, or provision of USAID staff, either Operational Expenses or Program funded, that is used to create an output.” Inputs in a logical framework are things needed to be able to implement actions; while outputs are the direct result of actions.

Using the Grand River project example, Table A1 illustrates how information from the results chain could feed directly into a logical framework matrix. The example matrix below includes indicators for all results (i.e., goal, purpose, sub-purpose, outcome, and output) typical of a logical framework.

Table A1. Grand River Project Example – Partial Logical Framework Matrix Derived from Results Chain

Narrative Summary	Indicators	Data Sources	Critical Assumptions
Goal: Biodiversity conservation for the well-being of rural residents strengthened	# people with increased benefits due to improved natural resource management ²⁵		% of the identified sub-watersheds of the Grand River classified as having healthy, self-sustaining native river fish populations
Purpose: Ecological integrity of priority sub-watersheds of the Grand River restored for current and future generations	% of priority sub-watersheds of the Grand River in country X classified as in good or very good condition	Biodiversity and Tropical Forest Assessment for Country X Expert panel Country X reports to Convention on Biological Diversity	Economy remains stable
Sub-Purpose 1. Healthy river fish populations: ²⁶ By 2025, more than 80% of the sub-watersheds of the Grand River have healthy, self-sustaining native river fish populations	% of sub-watersheds of the Grand River classified as having healthy, self-sustaining native river fish populations	Research from regional universities	Local demand for fish decreases Regulations sufficient for fishing capacity
Outcome 1.4 Overfishing declines: ²⁷ By 2018, the amount (in tons) of key identified species caught outside of established harvest quotas declines by at least 25%, as compared to 2015 levels	# of tons of key identified species caught outside of established harvest quotas	Fisheries agency's records of fish landings Fishing cooperative's records of fish brought in for processing and sale	
Outcome 1.3 Fishers use new practices: By 2017, at least 60% of the fishers in identified sub-watersheds of the Grand River are using only sustainable freshwater fishing practices	% of the fishers in identified sub-watersheds of the Grand River that are using only sustainable freshwater fishing practices	Registry of fishing gear on boats Random periodic checks of fishing boats	
Output 1.3.1: Fishers trained	# of fishers trained	Project tracking records	Weather permits travel to sites
Input 1.3.1: Training supplies	Verification program team has supplies identified in training plan	Project implementation plan checklist	
Outcome 1.2 Fishers income increased: By 2016, at least 80% of the fishers using the new practices are earning at least 30% more income than they were before they started using the new practices (and none are earning less)	% of fishers using new practices that are earning at least 30% more income than they were before they started using the new practices Average % increase in income for fishers using new practices		
Output 1.2.1: Fishing cooperatives organized	Documentation that shows that fishing cooperative has been legally created	Project tracking records	

²⁵ This goal and indicator are illustrative – the project goal and indicator come from the CDCS and are not addressed directly in these Biodiversity How-To Guides.

²⁶ USAID allows purpose, sub-purpose, and outcome statements with general wording like the bolded words in this table. What follows the bolded words are descriptions that make the statements more specific and measurable.

²⁷ USAID does not formally require outcomes in logical frameworks, but including them provides a more complete logical framework and helps the design team crosswalk their results chains work with the logical framework.

Narrative Summary	Indicators	Data Sources	Critical Assumptions
Output 1.2.2 Niche markets identified	Completed study	Project tracking records	
Input 1.2.1: Smart phones	Evidence that participating fishers have smart phones with Internet access	Project implementation plan checklist	
Input 1.2.2: Communal boats	Evidence that fisher communities have working communal boats	Field observation, consultation with fishers	
Outcome 1.1 Fishers know about new practices: By 2015, at least 90% of the fishers in identified sub-watersheds of the Grand River can name and describe at least two new sustainable fishing practices	% of fishers in identified sub-watersheds of the Grand River that can name and describe at least two new sustainable fishing practices	Household survey conducted by project	
Output 1.1.1: Workshops on fishing practices conducted	# of meetings or workshops conducted	Project tracking records	
Output 1.1.2: Outreach to fishers conducted	% of fishers contacted through outreach efforts	Project tracking records	Weather permits travel to sites
Input 1.1.1: Video testimonials	Completed video testimonials in local language	Project implementation plan checklist	
Input 1.1.2: Vehicle	Evidence of available working vehicle	Project implementation plan checklist	
Outcome 2.5. Sedimentation in river reduced: By 2025, sedimentation rates at key spawning sites have decreased by at least 50%, as compared to 2015 levels	Sedimentation rates at key spawning sites	Research from regional universities	No new major roads constructed
Outcomes 2.1, 2.2, 2.3 etc.			
Outputs 2.1.1, 2.1.2., 2.1.3, etc.			
Inputs 2.1.1, 2.1.2., 2.1.3, etc.			

As shown in Table A1, there are many overlaps between a results chain and a logical framework, and a results chain can provide a team with many of the elements for a logical framework. However, there are some differences:

Focus on outcomes versus outputs/inputs. Results chains focus primarily on outcomes and how they lead to changes in the situation a program is trying to influence. They do not generally include outputs or inputs. The main reason for this focus on outcomes is that the investment of inputs and the measurement of whether an action has been implemented (typically expressed as an output) do not indicate whether the theory of change is holding. As explained in Step 9 of *How-To Guide 2: Using Results Chains to Depict Theories of Change in Biodiversity Programming*, results chains may include a graphic representation of some of the actions necessary to implement a strategic approach and achieve key outcomes. Even if not graphically represented, the design team is likely to discuss key potential actions when developing a results chain. These actions could be the basis to define the outputs and inputs to be included in a possible logical framework or work plan.

Level of detail and complexity of relationships. Because a results chain requires that the causal connections are explicit and clear, it may have more results and outcomes than what is typically included in a logical framework. Moreover, results chains show these relationships diagrammatically, which allows for – where needed and useful – branching, feedback arrows, double arrows, and more explicit temporal sequencing. Logical frameworks, on the other hand, are not designed to show this type of complexity.

Types of assumptions. Results chains focus primarily on programmatic assumptions,²⁸ the assumptions between sequential results (the if-then of the theory of change), while logical frameworks highlight critical assumptions – external conditions out of USAID control that need to be met in order for the overall project or activity to be successful. Logical frameworks do lay out some key internal project assumptions, but not as explicitly as results chains. Results chains require design teams to state their expected results in a causal fashion, so they help determine if assumptions are holding and whether the expected results are occurring. If they are not, their results chain can help them determine where the break in logic is and why that break exists. This, in turn, helps programs understand what is working, what is not, and what adaptations are needed to improve strategic approaches.

²⁸ In this How-To Guide, the general term “assumptions” refers to the beliefs that a team has about how a strategic approach will lead to a series of results and, ultimately, to the reduction of key threats and the achievement of biodiversity conservation. In a results chain, the assumptions are represented by arrows that show how a team believes one result will lead to the next. The difference between an assumption as used in this How-To Guide and a USAID Program Cycle critical assumption is explained in Box 4 on page 21 of *Biodiversity How-To Guide 2: Using Results Chains to Depict Theories of Change in Biodiversity Programming*.



U.S. Agency for International Development

1300 Pennsylvania Avenue, NW

Washington, D.C. 20523

Tel: (202) 712-0000

Fax: (202) 216-3524

www.usaid.gov/biodiversity