

# PROGRAM CYCLE

## How-To Note: Developing a Project Logic Model (and its Associated Theory of Change)



This How-To Note describes steps and considerations for developing a project logic model (and its associated theory of change).

### Introduction

This How-To Note describes considerations for developing a project logic model, as well as steps for thinking through a more complete theory of change (TOC). A logic model is a graphic or visual depiction that summarizes key elements of a TOC, and it is often used as a facilitation tool during the design process. There are many types of logic models, including but not limited to logical frameworks (logframes), results chains, results frameworks, and local actor-oriented models, among others. The project logic model and its associated TOC are included in the Project Appraisal Document (PAD) that approves a project design (see **ADS 201.3.3.13**).

While this How-To Note focuses on logic models at the project level, logic models are also used at the strategy level (specifically, results frameworks – see **Box I**), and often at the activity level. The concepts and steps presented here are generally applicable to the process of developing logic models and TOCs throughout the Program Cycle.

### Background

During USAID's project design process, teams must develop a TOC describing how and why a project purpose is expected to be achieved in a given context, and an accompanying logic model providing a graphic or visual depiction that summarizes this TOC. A complete TOC includes five components:

1. **The context** in which the development problem is situated;
2. **If-then (causal) outcomes** needed to achieve the desired change;
3. **Major interventions** that USAID and others will undertake to catalyze these outcomes;
4. **Key assumptions** that underlie the success of this theory; and
5. **Key indicators** to monitor how progress unfolds during implementation.

How-To Notes provide guidelines and practical advice to USAID staff and partners related to the Program Cycle. This note was produced by the Bureau for Policy, Planning and Learning (PPL)

The logic model is a snapshot or approximation of this TOC; it is not an exact representation, and often does not include all of these elements. What is highlighted in the logic model will depend on its intended application and the degree of detail that the team opts to include in this summary presentation.

## Logic Models Are Multi-Purpose Tools

Logic models are useful tools for several reasons. First, if done well, they can help ensure that planning is done with the “end in mind<sup>1</sup>,” rather than focusing initially on resources or on the interventions to be performed. They can also be powerful instruments for guiding the monitoring and evaluation of projects, and indeed, some of the biggest proponents of logic models are those in the evaluation community, who rely on clear theories about how and why, and under what assumptions, a project is expected to achieve its objectives.<sup>2</sup> Managers also often value logic models for providing a programmatic roadmap and an organizing framework for learning and adapting, as well as a powerful communications device to show stakeholders at a glance what the project is about.

Moreover, the process of developing the logic model is often as important as the logic model itself, as it can help the team think through the TOC. When done in a group, the process can provide an opportunity to expose different beliefs about how change is expected to take place and expand thinking beyond conventional interventions, as well as promote shared buy-in around the ultimate approach. For this reason, it’s important to include diverse stakeholders in the project design team so that current paradigms can be challenged and new approaches can be considered.

### BOX 1: THE PROJECT LOGIC MODEL AND TOC IN THE CONTEXT OF THE PROGRAM CYCLE

A logic model is a visual or graphic depiction that is a snapshot of a more complete TOC. The relationship between the project logic model and its TOC is analogous to the relationship between the CDCS results framework (RF) and its development hypothesis. **An RF is a type of logic model, and a development hypothesis is a synonym for a theory of change.** Similarly, many activities have their own logic models and TOCs.

Ideally, logic models/TOCs for the CDCS and its subsidiary projects and activities would be developed chronologically, with one flowing seamlessly downward into the next. In reality, however, development of the logic models/TOCs at each planning level is a highly iterative process that is refined as the context continues to evolve, new analysis is conducted, and lessons are learned over the course of implementation. The project logic model and TOC are therefore never finished products (just as the RF and development hypothesis are never finished products); they’re a starting point that reflect the team’s best thinking at that moment in time, and should therefore be revisited and updated as needed.

<sup>1</sup> Covey, Stephen R., *The 7 Habits of Highly Effective People: Restoring the Character Ethic*. New York: Free Press, 2004.

<sup>2</sup> At USAID, theories of change and associated logic models are a critical foundation for developing whole-of-project performance evaluations, a requirement in **ADS 201.3.5.13**.

## Logic Models Come in Many Shapes and Sizes

As project planners seek new and creative ways to represent their project designs, logic models are increasingly varied and can be displayed by a wide variety of methods. Logic models can be:

- Simple or elaborate
- A table, flowchart, or combination of these
- Bottom-to-top, or left-or-right, or maybe even circular
- Time-sequenced, or divorced from time
- Logically linear with “cause” always leading to “effect,” or a more nuanced model that displays multi-directional relationships where effect can feed back into cause (or causes) and vice versa
- From the 30,000-foot view, or more of an on-the-ground view

Some of these approaches may be preferred for engaging stakeholder groups during the design process, while others may be preferred for communications purposes, or to be used as monitoring tools. In many cases, teams may opt for a family of logic models, with a simple parent version at a high level and nested versions focusing on different aspects of the design. This may be a particularly useful approach for USAID project designs since they are often large and multi-faceted, and a single logic model may not be able to capture this complexity.

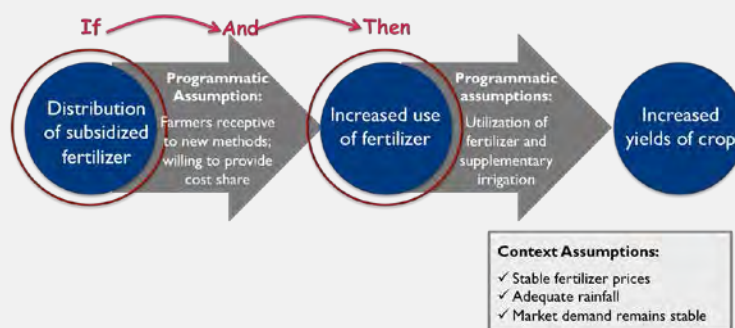
## Logic Models Are a Snapshot of a TOC

Logic models are a snapshot of a theory of change. They do not reflect all of the nuance in a TOC, nor do they necessarily include all of the components. The five components of a complete TOC include:

1. **The context** (or system) in which the development problem is situated. This includes the root causes or drivers underlying the development problem, as well as circumstances or conditions in the operating context that may affect intended project outcomes and are likely to change.

### BOX 2: ASSUMPTIONS

There are two types of assumptions: programmatic assumptions and context assumptions. Programmatic assumptions are the (often implicit) ways in which key outcomes are expected to contribute to the next level of outcome. Context assumptions are those external factors in the project context that are also outside the project manager’s control, but are nevertheless necessary for success. In both cases, there should be a reasonable likelihood that the assumptions will hold true since they form part of the theory of change and are conditions that are important to the logic working as intended.



2. **If-then (causal) outcomes**<sup>3</sup> that are expected to be achieved as a result of the project’s interventions. These outcomes should establish the causal relationships between the elements of a project leading to the project purpose. The TOC may also show feedback loops where “effect” is expected to feed back into “cause” and vice versa, to continually increase or reduce the magnitude of the original outcome. (See **Annex I** for additional guidance on feedback loops.)
3. **Major interventions** that the project intends to implement to directly or indirectly influence this set of outcomes.
4. **Key assumptions** articulating the conditions, behaviors, and/or critical events outside the control of the project that must prevail for the logic to work as intended. Assumptions form part of the complete TOC regarding the conditions under which change is envisioned to occur. Assumptions may be listed within the logic model itself, or to the side. At a minimum, they must be described in the TOC. See **Box 2** for a discussion of different types of assumptions.
5. **Indicators** to measure the most important expected project outcomes and assumptions. Indicators can be listed alongside the outcomes or assumptions that they represent within the logic model. At a minimum, they must be captured in the Project Monitoring, Evaluation and Learning (MEL) Plan.

See **Annexes 1A–D** and **Annex 2** for a few examples of different types of logic models.

### **BOX 3: COMPLEXITY IS AN IMPORTANT CONSIDERATION**

An important consideration during development of a project’s TOC is the nature of the development problem addressed by the design, and the context in which the design will be situated. Most problems can be classified on a spectrum ranging from “simple” to “complicated” to “complex,” and even “chaotic” (although this How-To will not address problems that are chaotic in nature). However, in reality, the boundaries in this spectrum are somewhat artificial as the large, interdisciplinary projects that USAID implements often have aspects of simple, complicated, and complex present within them.

- **In the simplest problems**, the context is often stable, causal dynamics are known, and best practices are common knowledge. In these cases, stakeholders almost always agree on the solution that is needed.
- **In complicated problems**, cause and effect relationships are knowable with additional expertise or time and energy to understand them. Experts would be expected to possess the relevant knowledge and to be able to identify effective good practices.
- **In the most complex problems**, the context is often changing rapidly, evidence is contradictory or highly incomplete, and there are multiple interdependencies among outcomes such that relationships between cause and effect can only be determined in retrospect. Even with rigorous analysis, stakeholders are uncertain about the solution for these types of problems.

<sup>3</sup> The terminology can differ from logic model to logic model; however, typical terminology includes outputs, outcomes, results, purpose, and/or goal. (To avoid confusion, this document just refers to “outcomes,” or “lower order to higher order outcomes.”)

In cases where there is a high degree of complexity, a more complexity-aware TOC should be developed. Complexity-aware strategies are useful for TOCs in general, but they become especially important in complex contexts. These include:

1. **Beginning with the “end in mind.”** Complexity-aware TOCs focus especially on defining the problem and describing higher-level outcomes that the project hopes to achieve, while leaving lower-level outcomes undefined or illustrative to allow for a more iterative theory of how the project is expected to achieve these outcomes.
2. **Acknowledging uncertainty.** Complexity-aware TOCs acknowledge where there is uncertainty, either because the context is changing rapidly, or because more analysis is needed, or because there are so many variables impacting upon outcomes that cause and effect relations are not predictable or repeatable (or are only perceivable in retrospect).
3. **Identifying assumptions.** Complexity-aware TOCs recognize that the initial TOC is an evolving draft based on a lot of assumptions made at the time of design. Therefore, it’s important to explicitly identify the major assumptions on which the TOC has been based.
4. **Establishing a robust monitoring framework.** Once the team has acknowledged areas of uncertainty and identified major assumptions, the team should establish a robust monitoring framework that it can use to assess the TOC and its underlying assumptions during implementation.
5. **Planning to adapt.** Finally, the team needs to plan to adapt, and that means building in the ability to learn and adjust from the very beginning.

While complexity should be recognized and addressed in the TOC, the degree to which it is represented in a logic model is a strategic decision. For example, a logic model could show very straightforward linear logic, with outcome A triggering outcome B, and outcome B triggering outcome C. This may be overly-simplistic, but it has the advantage of being easy to understand at first glance and keeping viewers focused on the biggest picture. Alternatively, a logic model could be much more dynamic with feedback loops and multi-directional interactions between outcomes, to better capture all of the variables that are understood to be at play.

## Regardless of the Model Used, Many of the Steps Are Similar

There is no single path for developing a project logic model and TOC. Some teams may begin by developing the TOC, and then distilling that into a logic model. More often, however, teams will use the logic model as a facilitation tool to help think through the TOC. In this case, development of both the logic model and TOC is a creative, iterative and messy process, and establishing a team environment that is less concerned about perfection and more focused on opening space to generate possibilities is essential.

All of this being said, general steps for developing a TOC/logic model are as follow:

### STEP 1: DEFINE THE PROBLEM

The process of developing the logic model (and TOC) begins with defining the problem. This process should have begun during the CDCS process; however, the beginning of the project design process presents an important opportunity to revalidate, refine and/or narrow the relevant problem statement. A clear statement looks beyond symptoms, without going into causes, to provide clear focus and direction for the project design process. For example, high rates of malnourished children may be a symptom of

smallholder farmers having very low income, while low productivity may be a cause; however, the core development problem on which the team may decide to focus is “smallholder farmers hav[ing] very low income” (see **Box 5**).

Defining the problem is arguably the most difficult yet most important of all steps. After all, as the previous example demonstrates, problems are often a small part of a greater problem, and each problem is composed of smaller problems. Drawing “boundaries,” or making choices about what is inside and outside the scope of analysis, is critically important to sharpen the team’s focus.

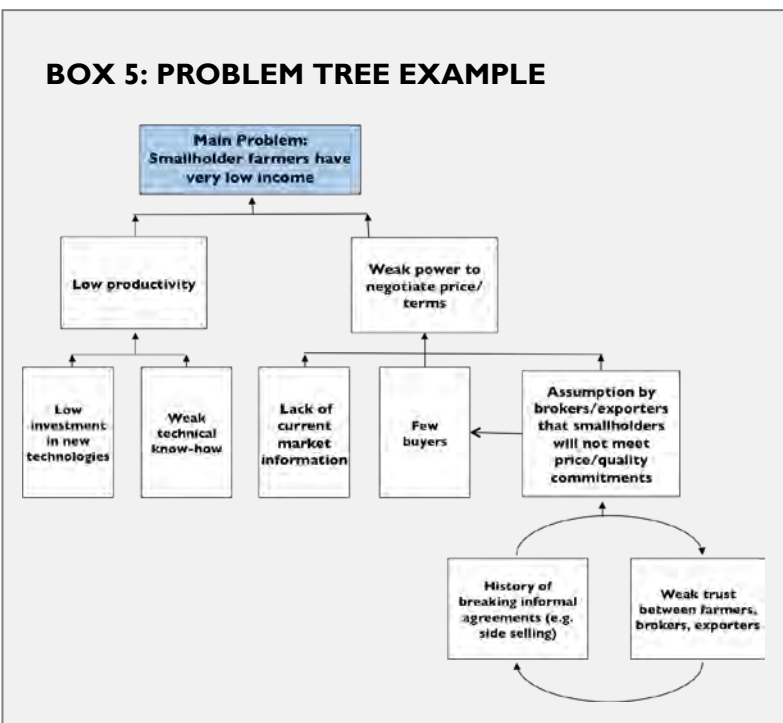
The problem statement is closely related to definition of the project purpose. The project purpose is typically a reframing of the problem to the desired change or outcome to be achieved. For example, a problem of “smallholders having very low income” would be reframed as a project purpose of “increased smallholder income.”

#### **BOX 4: SOFTWARE PROGRAMS FOR GENERATING LOGIC MODELS**

Too often, a big challenge to creating a logic model is technological. However, taking a picture of a logic model on a white board or drawing one on a piece of paper is perfectly acceptable since it’s the thinking behind the logic model that really matters. There are also many software programs—many of which are available online—to assist with the creation of flow charts and other kinds of diagrams. Popular programs include Toco, Vensim, Kumu, and Stella. Also, the Miradi software, which is used by the biodiversity conservation community for assisting with the development of Results Chains (see **Annex IA**), can be adapted for other sectors. A lot of teams, however, will prefer PowerPoint or Visio by Microsoft since they are widely known and available.

### **STEP 2: ASSESS THE CONTEXT**

Once the problem has been defined and the project purpose has been established, the team should assess the context. This process—which is also sometimes called a systems, situation, or problem



analysis—is the next step and is the anchor upon which the logic model is ultimately built. This assessment examines root causes or drivers underlying the problem, as well as circumstances or conditions in the environment that affect the situation, particularly those that are likely to change over the course of implementation and will need to be monitored. A systems-aware context assessment would also identify the interests and relationships of key local actors or stakeholders and how those impact upon the problem. See **ADS 201.3.3.13** for additional guidance.

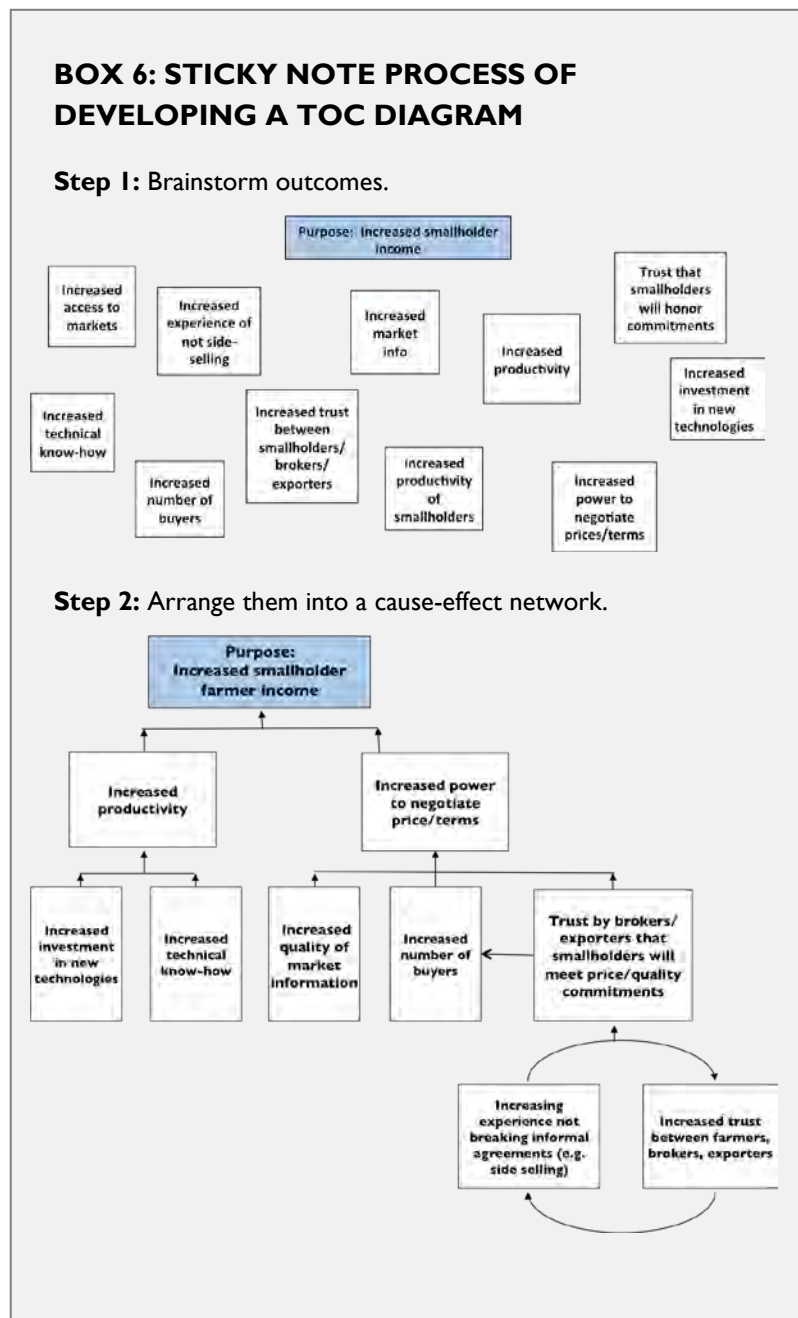


The process of assessing the context should draw upon a combination of evidence or information—including that gathered while developing the CDCS, as well as additional evidence commissioned or identified during project design—with each building off of the other to triangulate and validate findings. Potential sources of evidence include, but are not limited to: sector-specific assessments, reports, studies, or data collected by other organizations or researchers; monitoring data or evaluations of relevant and prior activities or projects; and site visits, focus groups, or consultations with key stakeholders and potential beneficiaries, among other options.

There are many complementary tools and techniques to facilitate the process of utilizing evidence to develop a context assessment, including the problem tree, the 5Rs approach, the causal loop diagram, fish bone analyses, situation models, and force field analyses, among others. See **Box 5** for an example of a problem tree and **Annex 2** for additional guidance on causal loop diagrams. Also, see *The 5Rs Framework in the Program Cycle* and *Developing Situation Models in USAID Biodiversity Programming* for other recommended approaches.

### STEP 3: DEVELOP AN IF-THEN (CAUSAL) OUTCOMES DIAGRAM

Drawing upon the context assessment, the team should then unpack the if-then (causal relationships) among outcomes that are expected to occur in support of the project purpose. Depending on the type of logic model, these if-then relationships may reflect linear logic, or be multi-directional with feedback loops. As explained earlier, complexity aware models often focus mostly on higher-order outcomes, while leaving lower order outcomes undefined. Or, alternatively, lower order outcomes can be developed based on a set of assumptions, recognizing that these might



change (see **Step 4** on defining assumptions).

A popular approach for building a TOC diagram in a group is to have the team brainstorm a list of outcomes and write them on sticky notes. The team then clusters these sticky notes into groups of similar or related outcomes, rephrases or consolidates sticky notes where needed and then arranges them into a sequence of cause and effect statements. This is often a highly iterative process, which is why sticky note systems are better than static drawings. From there, the team draws arrows indicating the direction of the causal logic, and may identify any feedback loops in which achievement of one outcome is expected to feed back into an earlier change. (See **Box 6** for an illustration of this sticky note methodology and **Box 7** for additional guidance on arranging this sequence of outcomes.)

A related approach is to take the chain of problems identified as part of the context assessment (see Problem Tree example in **Box 5**) and reframe them as the changes or outcomes to be achieved. For example, “lack of political accountability” would become “political accountability improved.”

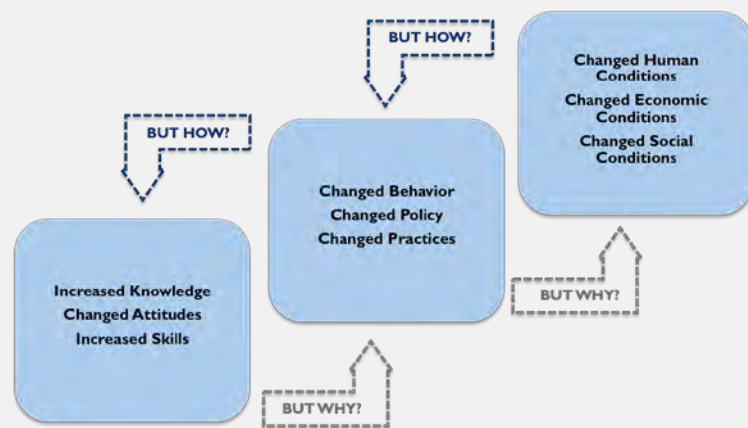
As for the outcomes statements themselves, generally they should be drafted as short narratives of intended accomplishment to indicate when an outcome has been reached. These statements should be specific and realistic (and ideally also measurable with associated indicators and targets—see **Step 6**). Typically they are written in the passive voice (e.g., productivity increased, trade barriers decreased, literacy improved, infant mortality reduced, civil society strengthened) to enhance objectivity and take the actor out of the action. However, more deliberate systems approaches may opt to explicitly write the outcomes statements in the active voice to indicate which local actor, or set of local actors, needs to take action to ensure the outcome’s long-term sustainability.

### **BOX 7: LOWER ORDER TO HIGHER ORDER OUTCOMES**

Lower order outcomes are typically shorter-term changes such as new knowledge or increased skills, while higher order outcomes are the anticipated longer-term effect of these changes, such as modified behavior and changed conditions.

There are two techniques that often are used in combination to check the logic’s validity:

1. Reverse Logic – examining effect-cause relationships from higher order outcomes to lower order outcomes by asking, “but how?, but how?, but how?.”
2. Forward Logic – examining cause-effect relationships from lower order to higher outcomes by asking, “but why?, but why?, but why?.”





## **STEP 4: IDENTIFY KEY ASSUMPTIONS**

While the team can never totally predict what will unfold over the course of the project, some assumptions always have to be made about the conditions, behaviors, and/or critical events outside the control of the project that must prevail for outcomes to be achieved. As discussed in **Box 2**, there are often factors in the project context that are outside the control of the project, but affect achievement of intended outcomes. In addition, there are programmatic assumptions underlying the logic (too often implicit) about how change is expected to take place.

Identified assumptions should be factors that need to be monitored because their invalidity could have negative consequences on the project. If done well, the surfacing and articulation of key assumptions can help managers evaluate and learn about the effectiveness of the approach under specific conditions. The invalidity of assumptions can also serve as important signals that the logic model and TOC need to be revisited, and likely adjusted, to yield better outcomes during implementation.

Assumptions can be displayed in each level in a table (e.g., the logframe – see **Annex IB**) or between boxes in a flowchart to show those conditions that are key to the next higher order outcome being achieved. Assumptions can also be listed on the side of the page, or in the accompanying TOC narrative.

## **STEP 5: EXTEND THE LOGIC MODEL TO THE OPERATIONAL LEVEL WITH MAJOR INTERVENTIONS**

Armed with a theory of how a set of lower order outcomes can contribute to achieving the purpose, the team should then work to identify major interventions it can implement to directly or indirectly achieve these set of outcomes. The degree of specificity in defining these interventions will largely depend on the nature of the problem and the context in which it is situated. In the simplest development problems, where the solution is clear, interventions should be stated with a high degree of specificity. In more complex problems, interventions will be less specific and focus especially on the first year of implementation. In these cases, it is especially important that the design be coupled with a plan for active monitoring and robust feedback so that managers can make adjustments as new information emerges or lessons are learned.

Again, the value of identifying interventions in a team with a diverse range of stakeholders cannot be overstated. With the logic model helping to keep the team focused on the bigger picture, the group should brainstorm a range of interventions. Two important criteria for selecting major interventions are their potential impact and their feasibility. Ultimately the goal is to identify a set of interventions that are practical, given available resources and identified assumptions.

## **STEP 6: IDENTIFY KEY INDICATORS**

Finally, the team should identify performance indicators that will signal successful achievement of the most important outcomes in the logic model. In addition to defining success, performance indicators can add clarity and dimension to outcomes statements, which, particularly at higher levels, are often defined broadly and open to interpretation. By pairing these statements with performance indicators, they become more precise, specific, and measurable. Ideally these indicators should also be coupled with baselines and targets; however, in many cases, this data may need to be established after activity implementation has begun and a baseline data collection can be executed.

Performance indicators don't have to be quantitative. For example, the team may determine that certain outcomes (e.g., "women's empowerment increased") may be better captured by qualitative indicators, such as a subjective rating scale. There should be no value judgment or competition between quantitative and qualitative performance indicators. Which type of indicator is selected depends on the nature of the outcome that is being assessed.

While performance indicators signify the extent to which particular outcomes have or have not occurred, they often do not clarify whether intended higher-level changes are occurring. It's important (though not required) to couple performance indicators with context indicators to measure the most important assumptions underlying the theory of change. These "context indicators" can monitor factors in the broader operating context or monitor the processes by which change is assumed to occur, particularly those processes about which the team is uncertain. Monitoring assumptions is critical to supporting the adaptive management of projects because they can serve as signals for when a logic model and TOC need be reassessed. Like assumptions, context indicators may be articulated within or alongside the logic model. At a minimum, they must be included in the Project MEL Plan.

See **ADS 201.3.3.5** for additional guidance on both performance and context indicators.

## **STEP 7: REVIEW THE STRENGTH OF THE MODEL**

Once the logic model has been developed, teams should review its strength by asking a few basic questions:

- **Is it clear?** Does the logic model clearly summarize the project's overall theory of change?
- **Is it plausible?** Is the logic model anchored in the context assessment? Is there a logical sequence of cause and effect leading to the project purpose? Do assumptions identify the major factors that may support or threaten the achievement of outcomes, and are they realistic within a certain range of performance? Are planned interventions likely to result in intended outcomes?
- **Is it doable?** Does USAID have enough resources, including time, to achieve the project purpose? Are outcomes within USAID's direct control or indirect influence?
- **Is it testable?** Are performance indicators good proxies for key outcomes? Can the theory of change underpinning the logic model be effectively monitored and evaluated?

Last but not least, teams should ask whether the logic model is easy to understand. If the model that emerges is so complex that it overwhelms stakeholders, it will likely gather dust on a shelf and/or fail to achieve its many potential benefits. Logic models are intended to be an approximation or simplified snapshot of the project design, and the model should be simple enough that the logical linkages are clear.

## **STEP 8: UPDATE THE MODEL OVER TIME**

The logic model (and its accompanying TOC) should be regularly revisited, revised and updated as needed, and project teams should plan for regular "pause and reflect" moments—for example, in connection with periodic project-level portfolio reviews—to revisit the thinking behind their logic model. Triggers for updating the logic model include shortfalls in the achievement of indicator targets or key assumptions proving invalid; they may also include internal shifts in funding or priorities that require

a rescoping of the purpose of the project. The logic model is intended to provide an organizing framework to facilitate learning and adapting, not a rigid prediction or blueprint of change. If done well, the model should help the team identify these triggering events and make iterative adjustments to yield the most effective course of action given the best available information at different moments in time.

### **ADDITIONAL RESOURCES**

- **The 5Rs Framework in the Program Cycle** (USAID/PPL Technical Note, Oct 2016)  
[https://programnet.usaid.gov/system/files/library/5Rs\\_Document\\_FINAL\\_EDIT\\_10.11.16.pdf](https://programnet.usaid.gov/system/files/library/5Rs_Document_FINAL_EDIT_10.11.16.pdf)
- **Complexity Aware Monitoring** (USAID/PPL Discussion Note, June 2016):  
[https://programnet.usaid.gov/system/files/library/2012\\_12\\_Logical\\_Framework\\_Technical\\_Note\\_final\\_1.pdf](https://programnet.usaid.gov/system/files/library/2012_12_Logical_Framework_Technical_Note_final_1.pdf)
- **Developing a Situation Model in USAID Biodiversity Programming** (USAID/E3/FAB How-To Note 2, Aug 2016):  
[https://programnet.usaid.gov/system/files/library/Biodiversity\\_HowToGuide1\\_508.pdf](https://programnet.usaid.gov/system/files/library/Biodiversity_HowToGuide1_508.pdf)
- **Developing and Using Results Chains to Depict Theories of Change in USAID Biodiversity Programming** (USAID/E3/FAB How-To Note 2, Aug 2016):  
[https://programnet.usaid.gov/system/files/library/Biodiversity\\_HowToGuide2\\_508.pdf](https://programnet.usaid.gov/system/files/library/Biodiversity_HowToGuide2_508.pdf)
- **The Logical Framework** (USAID/PPL Technical Note, Dec 2012):  
[https://programnet.usaid.gov/system/files/library/2012\\_12\\_Logical\\_Framework\\_Technical\\_Note\\_final\\_1.pdf](https://programnet.usaid.gov/system/files/library/2012_12_Logical_Framework_Technical_Note_final_1.pdf)
- **Results Framework** (USAID/PPL How-To Note): Coming Soon
- **Purposeful Program Theory: Effective Use of Theories of Change and Logic Models** (Sue C. Funnel and Patricia J. Rogers, Jossey-Bass, March 2011).

## Annex 1A: Examples of Logic Models

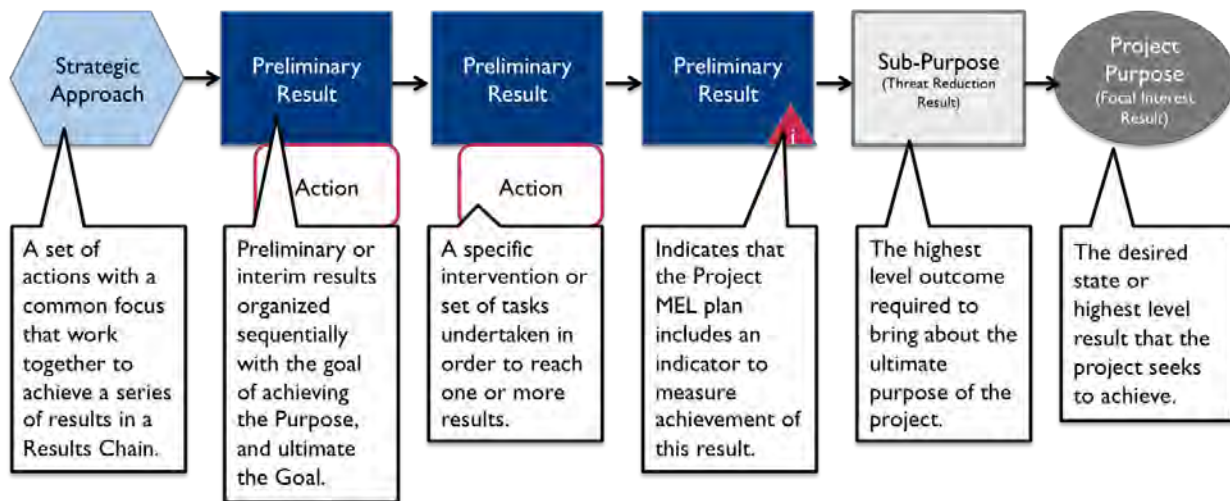
### RESULTS CHAIN

For decades, results chains have been used in a variety of fields to support project design, management, monitoring, and evaluation; however, they have been particularly adopted by the conservation community.

Results Chains are a type of logic model that use boxes and arrows to display the causal and sequential progression of results that planners believe are necessary to achieve a program's purpose (for project design, the "project purpose"). Since multiple change processes are often needed to achieve the purpose, Results Chain models typically include a network of multiple, but complementary chains that together support the final desired outcome.

The results chain's sequential progression of causal relationships distinguishes it from many other types of models that are causal, but not necessarily sequential. In addition, so-called "strategic approaches" for achieving results describe major interventions in broad terms. Specific interventions or "actions," if included are illustrative to indicate that tactics may shift during implementation. Advocates argue that this type of model helps facilitate day-to-day tracking of progress and adaptive decision-making as needed.

As shown in the figure below, there are five basic components of a results chain. The terminology in parentheses reflects the language typically used by the conservation community.

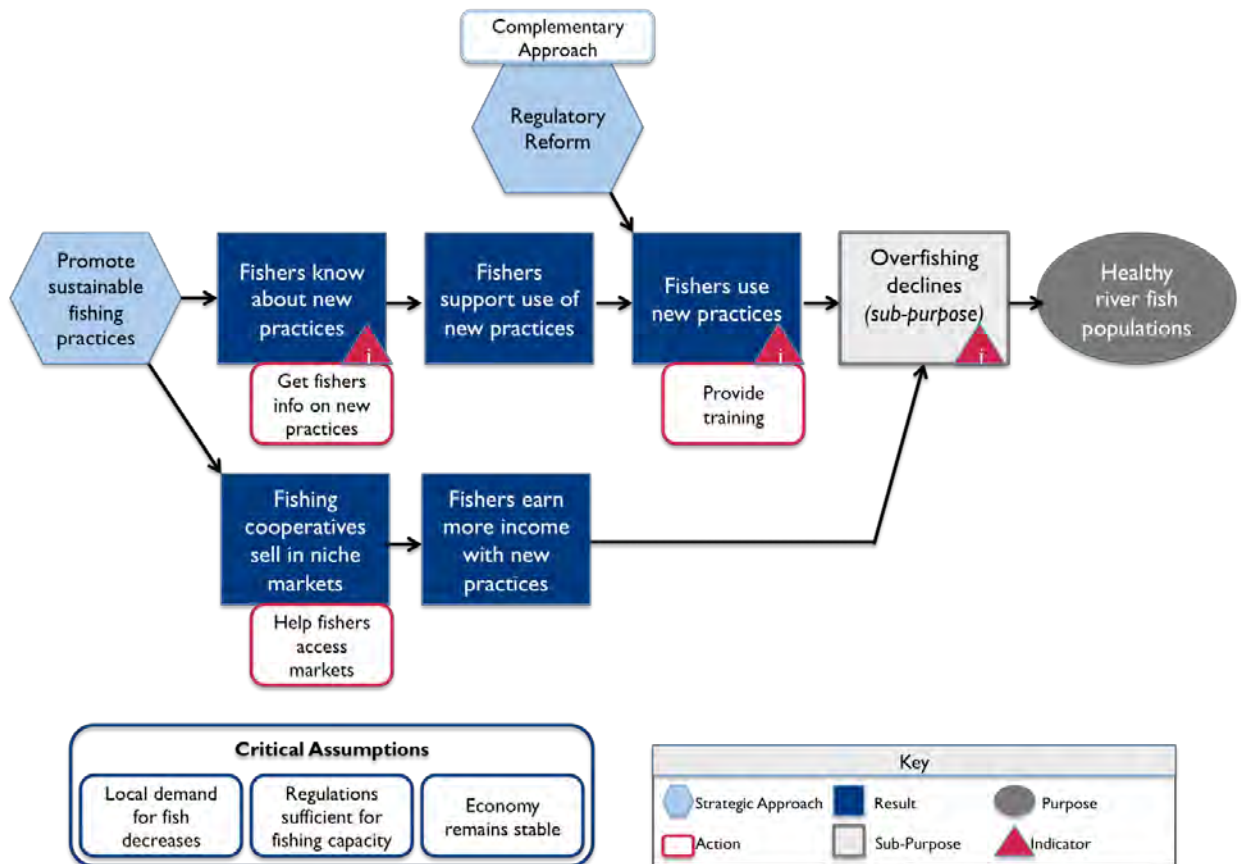


While the process of developing a Results Chain model can vary, in general it follows the following steps:

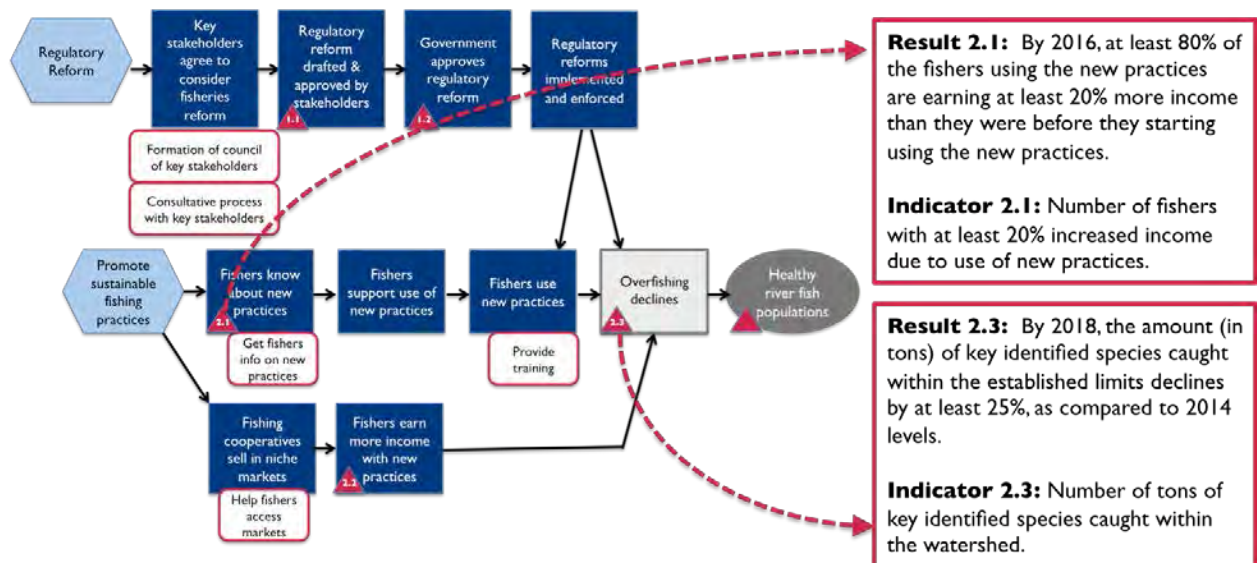
1. Define the Project Purpose and/or Sub-Purpose(s).
2. Develop a problem or context assessment diagram, known as a "situation model" in Results Chain vernacular. A situation model is typically composed of a number of "problem chains" that present the situation before project intervention. For additional guidance on situation models, see How-to Guide 1: Developing a Situation Model in USAID Biodiversity Programming.

3. Select prioritized problem chains from the situation model that the project will address.
4. Brainstorm and prioritize strategic approaches to address selected problems.
5. Reframe selected problem chains in the situation model into desired results.
6. Discuss and refine the logic of the Results Chain arrangement.

For a more detailed step-by-step description of these steps, see **How-To Guide 2: Developing and Using Results Chains to Depict Theories of Change in USAID Biodiversity Programming**. Projects typically include multiple strategic approaches and, therefore, multiple Results Chains contributing to achievement of the project purpose. The figure below illustrates a Results Chain model with two strategic approaches addressing the threat of overfishing that is affecting healthy river fish populations.



One of the unique elements of the result chain is that it flags “key results” that will be tracked and measured during implementation with red triangles. Further definition of these results and their associated performance indicators and targets can then be described in greater detail in an associated Project MEL Plan. As an example, see the figure below, where Results 2.1 and 2.3 are described in greater detail.





## Annex 1B: Examples of Logic Models

### LOGICAL FRAMEWORK

The logical framework, or logframe, is one of the principal tools used by the international development community to help design projects to achieve measurable outcomes. It was pioneered for USAID in the 1970s and has since been widely adopted by multilateral and bilateral agencies, NGOs, governments and implementers around the world. The logframe provides a simplified depiction of how a project is to function in the form of a linear chain of cause and effect. It establishes the “if-then” (causal) relationships between the elements of a project: if the outputs are achieved (and the assumptions hold true), then certain outcomes (or sub-purposes) can be expected; if the outcomes are achieved (and the assumptions hold true), then the purpose can be expected; and so on. Logframes are useful representations of projects where causal links are well known, or can be determined with additional expertise, and stakeholders agree on the solution.

Columns of the logframe consist of:

- **Narrative Summary:** The narrative summary of the logframe describes “how” a developmental change will be achieved (top-to-bottom) as well as “why” or “so what” (bottom-to-top). Note that the logframe is divorced from time; it does not describe the sequencing of activities and outcomes that may be required to achieve developmental changes.
- **Indicators:** The second column of the logframe matrix identifies performance indicators that signal successful achievement at each level of the project hierarchy. In addition to defining success, indicators add clarity and dimension to the narrative statement of the outcomes.
- **Data Sources:** As part of the process of identifying indicators, the data sources column shows how data will be collected for each indicator. If data cannot be easily obtained, then an alternative indicator may need to be selected. The frequency with which the project manager will obtain information from stated sources should also be indicated in the data sources column.
- **Assumptions:** The assumptions column identifies those factors necessary for achieving each level of the logframe that are outside of the Mission’s direct control or influence, e.g., inflation stays under control. The logframe requires that at each level, the outcomes planned plus assumptions at that level constitute sufficient conditions to achieve the next higher level of outcomes.

Narrative Summary	Indicators	Data Sources	Assumptions
Purpose	THEN		
Higher Order Outcomes	IF THEN		AND
Intermediate Outcomes	IF THEN		AND
Outputs (or lower order outcome)	IF		AND

The rows in the logframe establish the different levels of outcomes ranging from lower order outcomes or outputs to higher order Purpose and Goal. The language may differ from logframe to logframe; however, generally at USAID, the standardized language is as follows:

- **Outputs** are the tangible, immediate, and intended products or consequences of an activity within USAID’s direct control or influence—the deliverables. All outputs that are necessary to achieve the purpose should be identified.
- **Sub-Purposes** or **Outcomes** (the exact vernacular is flexible) are mid-level outcomes that contribute to achievement of the purpose. It is also possible to add levels of outcomes depending on the scope and complexity of the project.
- The **Purpose** is the key outcome to be achieved by the project.

See **USAID’s Logical Framework Technical Note** for additional guidance.

NARRATIVE SUMMARY	INDICATORS	DATA SOURCES	ASSUMPTIONS
<b>Purpose: Increased income of male and female smallholder farmers in NE region</b>	% increase in per capita household expenditures of USG targeted beneficiaries	FTF baseline CPRs	Macroecon stability (inflation)
<b>Sub-Purpose 1: Increased agricultural productivity of male and female smallholder farmers in NE region</b>	Gross margins per hectare of key commodities in targeted region	Impact evaluation	Real producer prices do not decline
<u>Outputs:</u> <ul style="list-style-type: none"> <li>• M/F smallholder farmers trained on commercial farming and on-farm climate change risk reducing practices</li> <li>• New market-tested technologies developed</li> <li>• Climate change vulnerability assessment completed</li> </ul> <u>Inputs:</u> Training farmers, TA for research, vulnerability assessment, seeds & fertilizer for testing new tech.	<ul style="list-style-type: none"> <li>• Average score from training participants on quality of the training course</li> <li>• # of farmers trained in new farming tech</li> <li>• # of key commodity technologies under development as a result of USG assistance</li> <li>• # of recs for climate change adaptation from vulnerability assessment tested</li> </ul>	Project Activity reports	The Climate Change vulnerability assessment identifies viable opportunities for climate change adaptation
<b>Sub-Purpose 2: Increased access to markets</b>	% increase in the \$ value of export of key commodities by end of project	National statistics	New market linkages result in ↑ sales
<u>Outputs:</u> <ul style="list-style-type: none"> <li>• Buyer facilitation and training provided</li> <li>• Market information system facilitation delivered</li> </ul> <u>Inputs:</u> TA & equipment for info systems, TA & resources to train buyers, and convene and promote buyers’ network	<ul style="list-style-type: none"> <li>• # info. system recommendations produced</li> <li>• # stakeholders convened to assess information system weaknesses</li> <li>• # buyer contacts made</li> <li>• # buyers trained</li> </ul>	Project Activity reports	Buyers willing to participate in training & perceive benefits of organizing in networks
<b>Sub-Purpose 3: Improved access to support services</b>	% increase in the # of farmers/value chain actors accessing support services by 2016	Activity reports	Interest rates remain stable
<u>Outputs:</u> <ul style="list-style-type: none"> <li>• Service providers trained to improve outreach service quality</li> <li>• Farmers’ networks facilitated</li> <li>• Financial institutions supported to develop products, i.d. clients, improve financial literacy</li> </ul>	<ul style="list-style-type: none"> <li>• # of advisory service providers receiving USG assistance to improve service delivery capacity</li> <li>• # of farmer orgs receiving USG assistance</li> <li>• \$ value of credit guarantee extended</li> </ul>	Activity reports	Increased credibility of farmers’ groups will build farmers’ trust in them

## Annex I C: Examples of Logic Models

### RESULTS FRAMEWORK

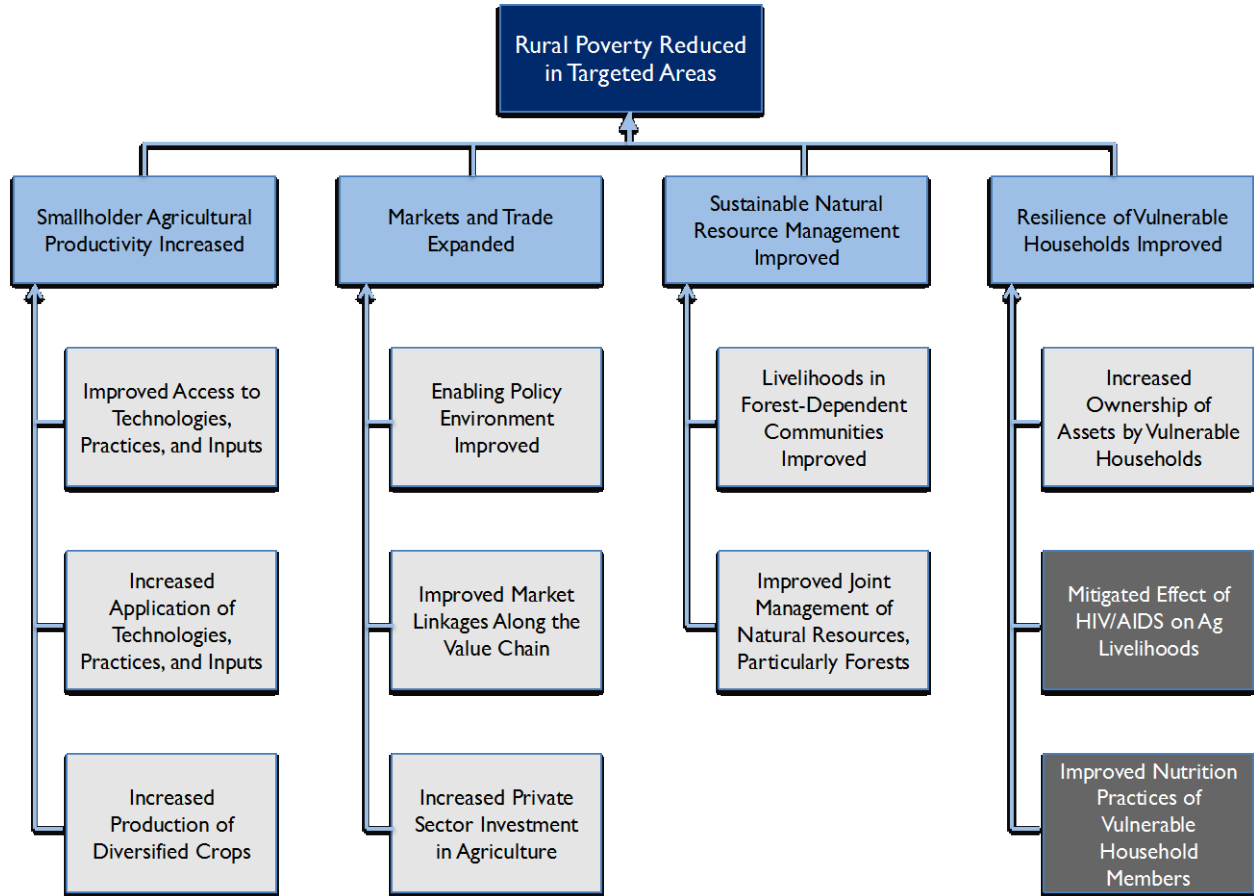
The results framework (RF) has been a key logic model for USAID for depicting the underlying logic behind USAID Mission strategies (i.e., CDCSs) since the 1990s. The RF can also be used at the project-level. If an RF is selected to depict the project TOC, the team should use the relevant part of the parent RF in the CDCS as the starting point. As additional analysis is conducted during the project design process and more information is available about root causes of the development problem, the team may opt to refine or reorganize the CDCS RF, as well as the underlying development hypothesis. These changes may require a CDCS update or amendment to ensure ongoing alignment.

The classic RF has long been considered an alternative to the logframe (see **Annex I B**). When using an RF for project design, bear in mind that there are some key differences:

- The basic format of an RF is a visual illustration, while the basic format of a logframe is that of a matrix.
- RFs emphasize higher-level outcomes and were designed to document a chain of results, not the tactics and approaches designed to achieve those results. Logframes include lower level outcomes, including outputs and inputs, in their depiction of the TOC.
- While a logframe presents a hierarchy of objectives that is divorced from time (going from the project purpose down to outputs), an RF lays out a time-based sequence of results. Rotating an RF to show progress horizontally rather than vertically may make it easier to visualize this sequencing, including how certain results (e.g., policy change to create enabling conditions) may precede other results (e.g., changes in farming practices). Delays in achieving one result may impact the ability to achieve other, related results.
- The classic format of an RF graphic is uncluttered with information about indicators, data sources and assumptions contained in a separate narrative, while the logframe includes all of this information within the matrix itself.

While both frameworks have their differences, they've both borrowed from one another over time, and teams may opt to develop hybrid frameworks that draw upon the strengths of these two approaches and/or others. As modified, RFs can include indicators and assumptions in an accompanying narrative, and they can extend to outputs or inputs. They can also display non-linear causality, with multi-directional relationships or feedback loops. Alternatively, teams may develop a classic RF at the project level to keep everyone focused on the bigger picture, and complement that with nested logic models (either modified RFs or another type) that zoom in on different aspects of the design.

See the example below of a classic project-level RF focused on reducing rural poverty in targeted areas:



## Annex 1D: Examples of Logic Models

### ACTOR-ORIENTED MODEL

An actor-oriented logic model takes a different lens than traditional logic models that often focus on “what” outcomes need to be produced, but don’t necessarily address “who” in the local system should produce or influence those outcomes in order to ensure their sustainability. Critics argue that when traditional logic models don’t focus on the “who,” they can inadvertently facilitate designs that treat USAID as a solo actor working to augment a broken system, rather than working through local actors to strengthen it. Unfortunately, while such approaches are often effective at delivering short-outputs, these outputs often don’t endure once the project ends.

In contrast, supporters argue that actor-oriented models can facilitate a profound paradigm shift, from USAID working as a solo actor to USAID facilitating local actors to own and create their own change. Actor-oriented models focus first on “who” in the local system needs to change their behavior—both themselves and/or in relation to one another—to yield certain outcomes, and then how USAID can work to facilitate this behavior change.

Certainly not every development project lends itself to this methodology. If USAID is working to quickly deliver food in the midst of a devastating famine, its intent is to augment a weak agricultural system that is failing to produce adequate food for its constituent population. The intent is in this case not sustainability. However, if USAID is working to catalyze sustainable change in a region with chronic food insecurity, the most effective strategy may be to strengthen the local system in which smallholder farmers operate, to permanently increase productivity and incomes.

Facilitating, rather than delivering, change is challenging work, and logic models need to be drafted with the understanding that interventions may need to be continually revised as tactics are adjusted. Tactics may include listening, cultivating trust, facilitating, and convening, rather than taking a direct role in implementation, and teaming up with influencers or early adopters is often key. In some cases, USAID resources may be needed to catalyze changes, as long as there is reasonable promise that local actors will increasingly make these investments themselves.

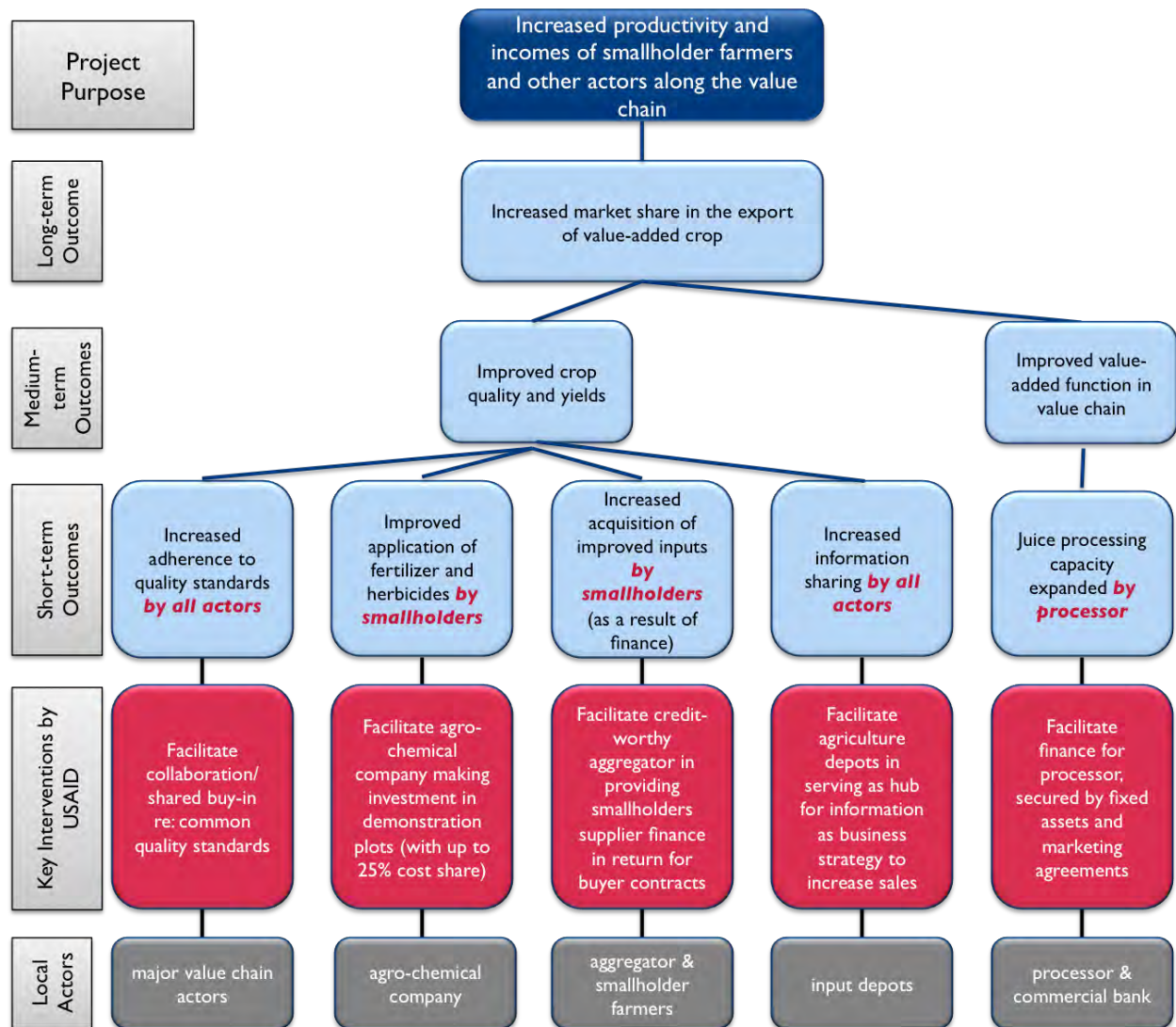
In the example below, a pomegranate value chain needs to be able to produce larger volumes of pomegranates, at higher quality, to meet strict requirements for processing in the capital city, and ultimately export overseas. If these requirements cannot be met, smallholder farmers ultimately must sell to small traders, who pay a much lower price. Meeting these requirements demands a systems approach; it demands broader adherence to quality standards; improved application of herbicides and fertilizer; improved inputs, including improved seed varieties; better information sharing; and expanded processing capacity. Traditional approaches of training farmers is not sufficient. All major value chain actors—from the processor, to the aggregator, local finance institution, agro-chemical company, input depots, and smallholders themselves—need to make certain changes.

The form of an actor-oriented logic model approach is flexible. It could be one model with simple linear outcomes chains, organized by actor, or it could be a family of logic models, each developed by actor. Regardless of the approach, it is best to keep it simple since facilitating behavior change is very complex and requires constant iterations. The initial logic model may outline some initial strategies to facilitate this behavior change, but ultimately, USAID needs to be flexible as it learns more about power



dynamics, incentives (or disincentives), leverage points, and rivalries during implementation. For this reason, it's all the more important to couple it with robust context monitoring to enable better decision-making about course corrections along the way.

See example below of an actor-oriented model focused on a purpose of increased productivity and incomes of smallholder farmers and other actors along a pomegranate value chain.





## Annex 2: Example of a Context Assessment Diagram (THAT CAN BE MODIFIED TO BECOME A LOGIC MODEL)

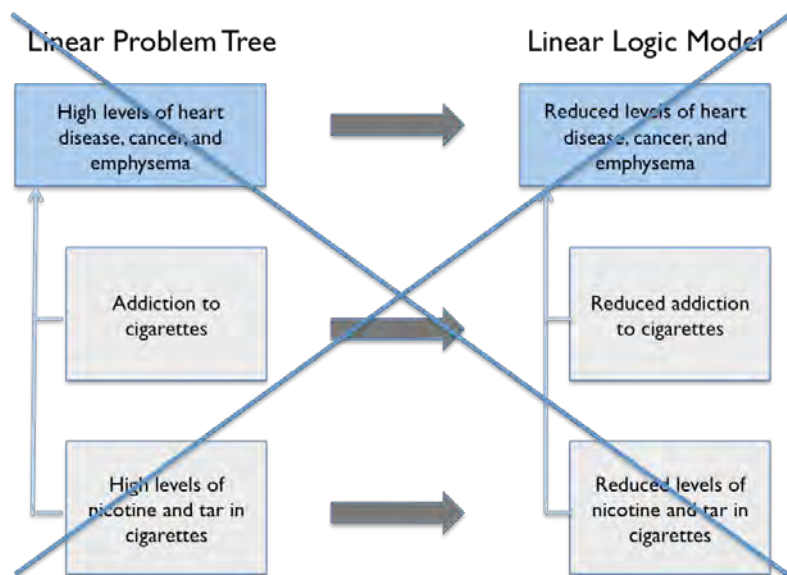
### CAUSAL LOOP DIAGRAM

A causal loop diagram (CLD) is a type of context assessment used to map and model complex systems. It consists of a collection of connected variables, with different kinds of arrows to show the relationships and feedback loops amongst these variables. Unlike many types of context assessments, causal loop diagrams do not just focus on problems; they focus on key relationships, both good and bad, that influence the development problem.

Advocates of CLDs argue that traditional context assessments that focus on a linear chain of problems (as illustrated through a problem tree) tend to oversimplify the world as linear and static, and consequently, users too often end up interacting with the world as if it's linear and static. For example, if a problem tree shows high levels of tar and nicotine in cigarettes leading to high levels of heart disease, cancer and emphysema, then one might logically deduce that low tar and nicotine cigarettes would reduce the risk of such health effects. Unfortunately, there

can be unintended consequences when planners design projects as if a major cause of problems always equals the solution (see example to the right) since other dynamic variables may come into play when one variable changes. In this example, efforts to reduce the risk of smoking in the 1990s by lowering the nicotine level in cigarettes failed because smokers compensated by smoking more intensely and more often. CLDs attempt to better represent complexity (using the best available information and thinking) to help mitigate these logical errors.

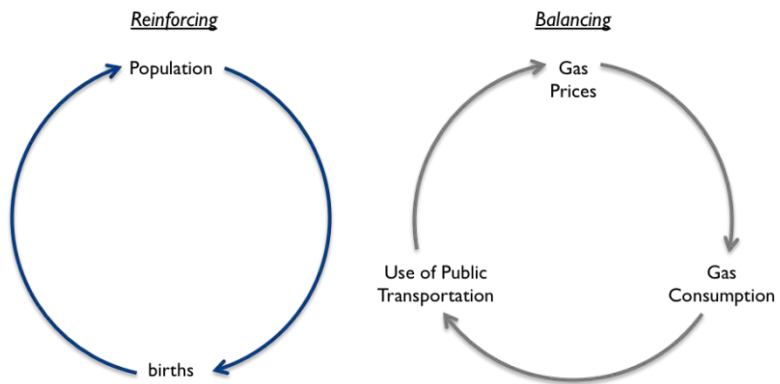
Critics of CLDs, however, argue that CLDs are often so complex that they can be difficult for the human mind to comprehend. And, indeed, one rarely learns as much from reading a CLD as they do from going through the process of making one. For this reason, it is highly recommended that this process be done in a diverse group to include a range of stakeholder perspectives. Software programs like Vensim and Kumu can also assist in translating the group's evolving understanding into a CLD diagram as decisions are made.



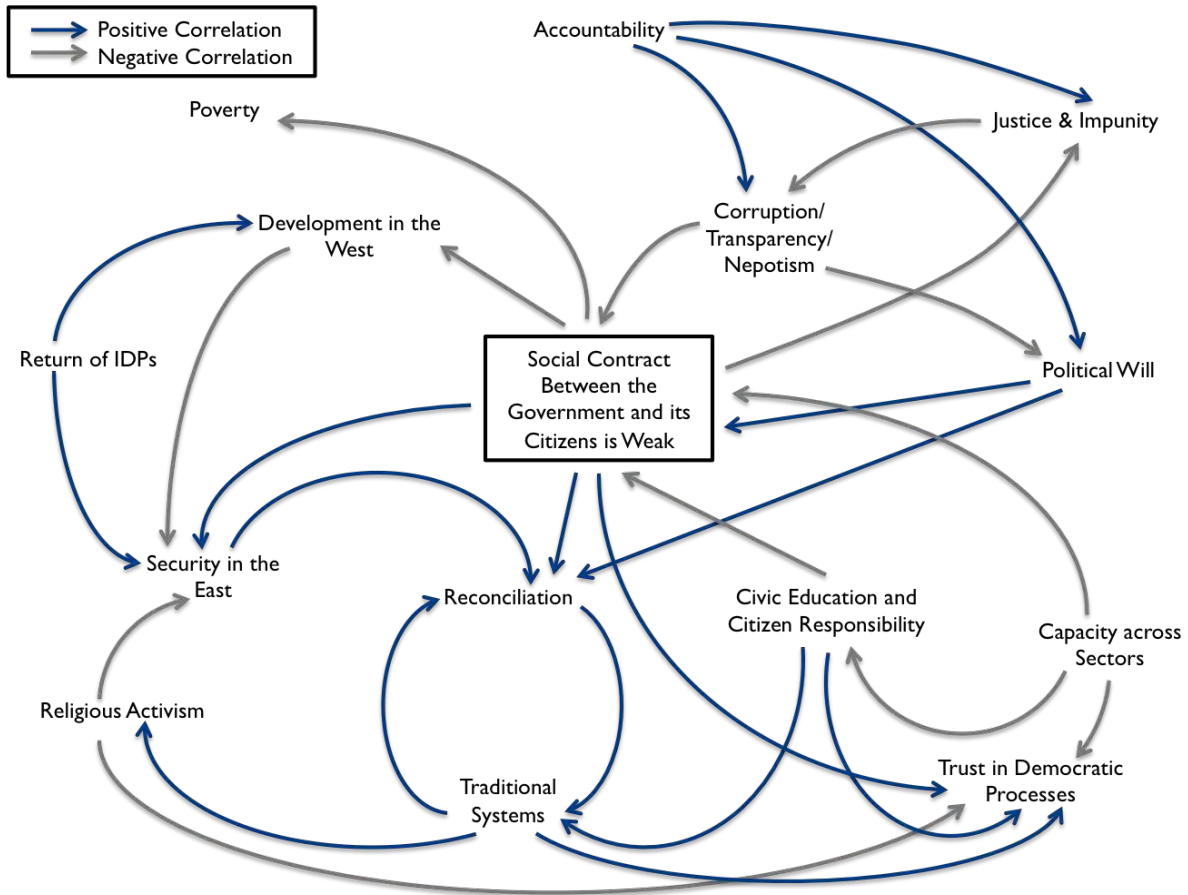
A traditional CLD diagram consists of three components:

1. **Variables.** Also known as factors or nodes, these are elements that directly or indirectly influence the issue at hand. Variables should be written such that they are neutral. For example, “use of public transportation” is better than “increased use of public transportation” or “decreased use of public transportation.”
2. **Causal Relationships.** These are depicted by arrows that show the direction of influence or causality between related variables. Each arrow is labeled as ‘positive’ or ‘negative’ to indicate the nature of the relationship. Positive means that the relationship moves in the same direction, while negative means that the relationship moves in opposite directions. For example, an increase in ‘births’ leads to an increase in the ‘population,’ so the relationship is positive. However, an increase in the ‘use of public transportation’ leads to a decrease in ‘gas consumption,’ so the relationship is negative.

3. **Feedback Loops.** These are loops that feed back onto themselves, with an effect influencing its cause. There are two types of feedback loops: balancing and reinforcing. Reinforcing feedback loops—also known as vicious or virtuous cycles—continue to change in the same direction, and therefore enhance or amplify changes. For example, an increase in population increases births, which increases population. Balancing loops—also known as homeostatic relationships—buffer or dampen changes. For example, an increase in gas prices increases use of public transportation, which decreases gas consumption, which decreases gas prices.

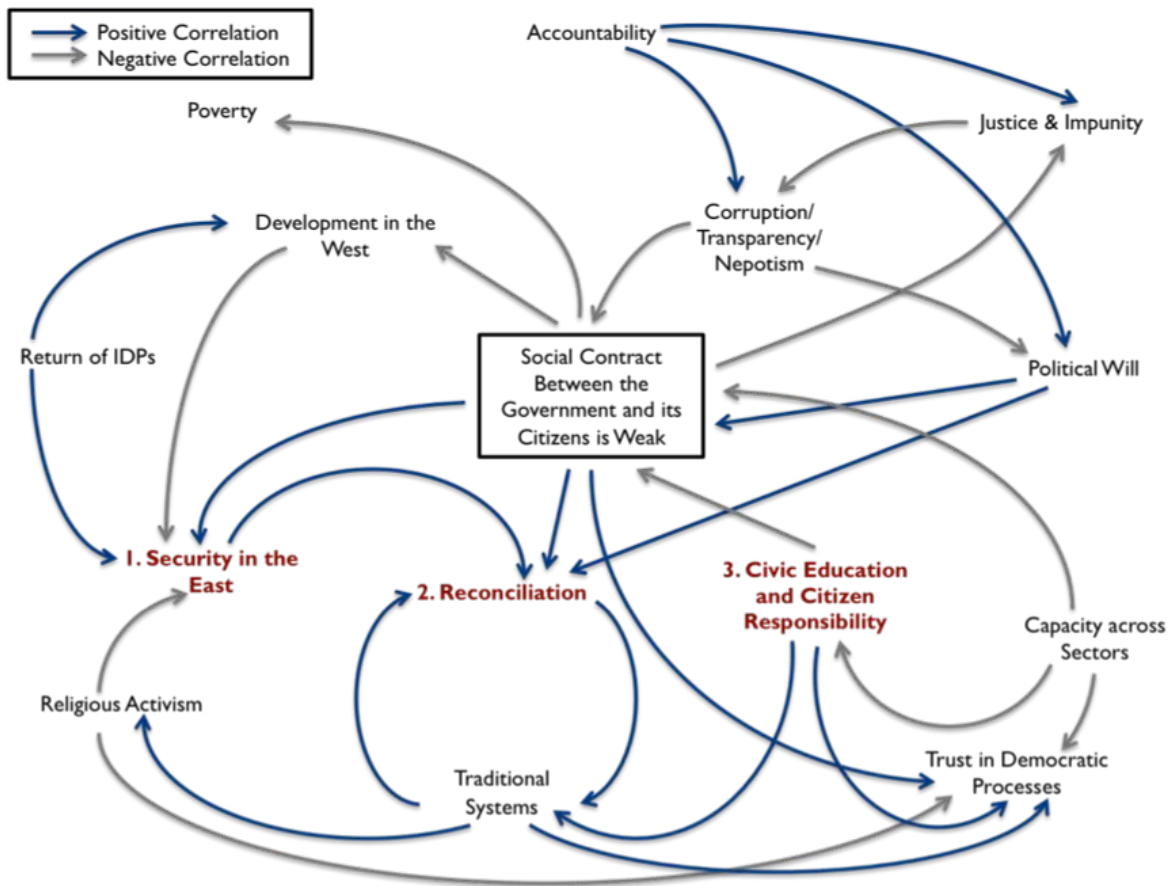


These three components comprise a traditional CLD and are a type of context assessment upon which a logic model can be built. See the figure below for an example.



After developing a CLD, the next challenge is to identify how USAID intends to directly and/or indirectly work to influence these changes. USAID rarely has the resources or influence to pursue changes at all points in a system, so planners should look for entry points that can leverage or catalyze broad change across the system to the greatest extent feasible. Leverage points can be found within social structures (such as community leaders), economic incentives (such as increasing demand), and social incentives (such as social norms). Also, analysis of leverage points may lead to working with several actors, or it could lead to working with a lead actor that has significant influence.

See figure below for an example of a CLD with three identified leverage points that are linked to a theory of action.



## Theory of Action

### **I. Increased Security in the East**

- Partner with local government to improve governance of high value natural resources linked to existing conflict.
- Build capacity of informal judicial institutions that can address perceived grievances.

### **2. Increased Reconciliation**

- Work with religious leaders to establish reconciliation committees to promote tolerance.

### **3. Increased Civic Education and Citizen Responsibility**

- Partner with churches to deliver community-based civic education activities.
- Partner with local government to promote civic education messages through broad-based media.