



# HEALTH SYSTEMS STRENGTHENING PRACTICE SPOTLIGHT

## CONTRIBUTION ANALYSIS

### Capturing the effects of complex health system strengthening activities

#### MONITORING, EVALUATION, RESEARCH & LEARNING (MERL) SERIES

The pathways between health system interventions and improved health outcomes are often hard to pinpoint with traditional MERL approaches.<sup>1</sup> In health system strengthening projects, cause-and-effect relationships are multifaceted, many different stakeholders are involved, contextual factors often affect implementation, unforeseen opportunities and challenges continually arise, and change is frequent and unpredictable. The Practice Spotlights MERL series presents complexity-aware MERL approaches that are well-suited to generating evidence on the effects of health system strengthening interventions. These briefs are intended to provide useful information for USAID Missions, implementing partners, and health system stakeholders when designing MERL plans for health system strengthening interventions.

#### INTRODUCTION

Contribution analysis is a MERL approach that can help implementers understand the role an intervention played in specific outcomes and observed changes in a health system. In complex environments where the causes of change are multifaceted and difficult to trace, contribution analysis helps implementers figure out why the observed results occurred and tease apart the roles played by the intervention and external factors.<sup>2</sup> It assists implementers in verifying an activity's theory of change (TOC) by providing evidence that the change happened and that the intervention contributed to the observed results. Contribution analysis is typically conducted during the implementation of an intervention, or it can be applied towards the end of an intervention or afterwards.<sup>3</sup> If a contribution analysis is planned from the beginning of implementation, data on assumptions and contextual factors can be collected before implementation and along the way. With sufficient planning, findings can enable health system strengthening (HSS) practitioners to adapt interventions repeatedly based on findings.<sup>4</sup>

While not the goal of contribution analysis, causality or causal linkages between an intervention and observed results can be inferred if the following conditions are met:<sup>5</sup>

1. A TOC was developed prior to implementation that included assumptions validated by key stakeholders.
2. The intervention was implemented in alignment with the TOC.
3. The expected results occurred, generating the evidence needed to verify the TOC.
4. Any other factors that may have influenced the intervention were either shown to not have substantially contributed to the outcomes or the contribution of these other factors was incorporated into the analysis.

Interventions that are guided by a clearly articulated TOC make the best candidates for contribution analysis. A contribution analysis does not provide definitive proof that an intervention played a role in achieving documented results.<sup>6</sup> Rather, when an experimental design is not possible, contribution analysis produces evidence and a chain of reasoning required to provide a rational explanation of why the results occurred.<sup>7</sup>

Contribution analysis is particularly well-suited to HSS activities because it acknowledges that an intervention is not implemented in a vacuum; instead, it accounts for many internal and external factors that may contribute to the results. Contribution analysis provides a structured framework for collecting data necessary to

validate the sometimes distant link and unclear causality between an HSS intervention and outcomes at any level of the health system, including outcomes in individual people's health. It can trace the probable causal linkages from the HSS intervention to a change in health outcome, allowing for unanticipated results and roadblocks. By incorporating evidence on the effects of assumptions and external factors, contribution analysis offers plausibility in establishing causal links where traditional monitoring and evaluation (M&E) approaches, such as indicator tracking and process or impact evaluation, may not be possible. Figure 1 depicts six essential steps of a contribution analysis.

FIGURE 1. SIX STEPS OF A CONTRIBUTION ANALYSIS<sup>8,9,10</sup>



## USE CASES

The use cases in this section illustrate how HSS projects have applied contribution analysis to understand the role that complex, systems-level interventions have played in causing observed health and systems outcomes. The examples were identified through a consultative process involving an Advisory Committee, a literature scan, conversations with stakeholders, and a snowball approach. A use case was selected if the stakeholders identified their method as contribution analysis, the method was used to assess an HSS intervention, and the six steps in Figure 1 were involved. Of four examples considered for inclusion, the use cases described below are the only two that met the criteria. We highlight where these examples adopted best practices for incorporating a contribution analysis into an HSS project. Implementation considerations drawn from these examples are discussed at the end of the brief. See Annex 1 for more details on the methodology used to select the topic for this brief.

### Maximizing the Quality of Scaling Up Nutrition Plus Project

From 2016-2020, the U.K. Foreign, Commonwealth and Development Office (FCDO)-funded Maximizing the Quality of Scaling Up Nutrition Plus (MQSUN+) Project addressed the immediate and underlying causes of malnutrition through various system-level interventions. Through technical assistance (TA) that included capacity strengthening, evidence generation, and policy development, the project sought to improve the enabling environment for scaling up multisectoral nutrition efforts and improved nutritional status.<sup>11</sup>

The project used contribution analysis to assess the TA's effects on health systems and nutritional status, although they referred to their approach as "assumption mapping." Assumption mapping enabled MQSUN+ to propose possible causal pathways that led to the TA's intended system-level outcomes and impacts (e.g., an improved policy environment), and ultimate improvements to nutritional status.

## DEFINITIONS

**Complexity-aware monitoring:** Complexity-aware monitoring (CAM) approaches are well-suited to nonlinear interventions. As a recent Learning Lab Discussion Note described, such approaches account for unintended outcomes, acknowledge alternate causes for observed outcomes, ensure that information is available when it's needed, and consider the interrelationships, perspectives, and boundaries of a system.<sup>12</sup>

**Contribution question:** A key component of the contribution story, the contribution question guides the analysis by identifying the causal linkage to be investigated between an intervention and outcome. The contribution question is at times referred to as the "attribution question." An example of a contribution question is, *How did the technical assistance contribute to an increase in the prevalence of breastfeeding?*

**Contribution story:** The contribution story summarizes key components of a contribution analysis, including the guiding contribution question, the theory of change (including assumptions and external factors), and the evidence collected as part of the contribution analysis. The contribution story is similar to a theory of change, but while a theory of change explains how an intervention is supposed to happen in the future, a contribution story is generated after the contribution analysis is completed and describes how an intervention was implemented, and why it happened in that way.

**Theory of change:** A framework that guides the design and implementation of an intervention. The theory of change describes the rationale for how an intervention is designed and connects inputs to outputs, outcomes, and impacts through expected causal pathways.

Each assumption map focused on one type of intervention (e.g., capacity strengthening) across multiple countries where the project worked.

The MQSUN+ team used the assumption maps to visually represent the pathway from systems-level TA to nutrition impact. The maps had a similar structure to a TOC, in that they detailed activities (interventions), outputs, outcomes, impacts, and associated assumptions. The assumption maps also highlighted roadblocks and often overlooked signs of system-level impacts necessary to achieve improved nutritional status. The maps went beyond connecting M&E indicators to a TOC, and suggested ways implementers could overcome roadblocks and achieve impact.<sup>13</sup> This approach helped the team look beyond its process indicators and consider the TA outcomes and impacts across vastly different country contexts. Further, assumption mapping provided a value-add by demonstrating how the TA contributed to the project's and FCDO's visions and objectives.

### BOX 1: COLLECTING EVIDENCE

MQSUN+ regularly collected data to inform their assumption maps through project work such as weekly team meetings, monthly staff meetings, exit interviews when interventions ended, quarterly client reports, and informal consultations with local stakeholders (e.g., government counterparts, in-country donor focal points, business networks, and civil society).

MQSUN+ continuously collected the necessary evidence to validate the contribution story through regular programmatic meetings (Box 1). After developing the methodology in the first year of the project, the team consolidated data and updated the contribution story annually. As Figure 2 illustrates, the assumption map served as a framework to help the team understand whether the TA in different countries met the assumptions laid out in the intervention's logical framework and TOC, and to confirm, through a combination of knowledge from local and international experts, the contribution of the interventions to the expected outcomes and system-wide impact.<sup>14</sup>

The contribution analysis forced the team to take a step back from implementation to think through what the likely effects of the interventions would be. The team documented what happened and the roadblocks encountered, as informed by the validation process; that information is preserved in case studies the team can revisit in the future.

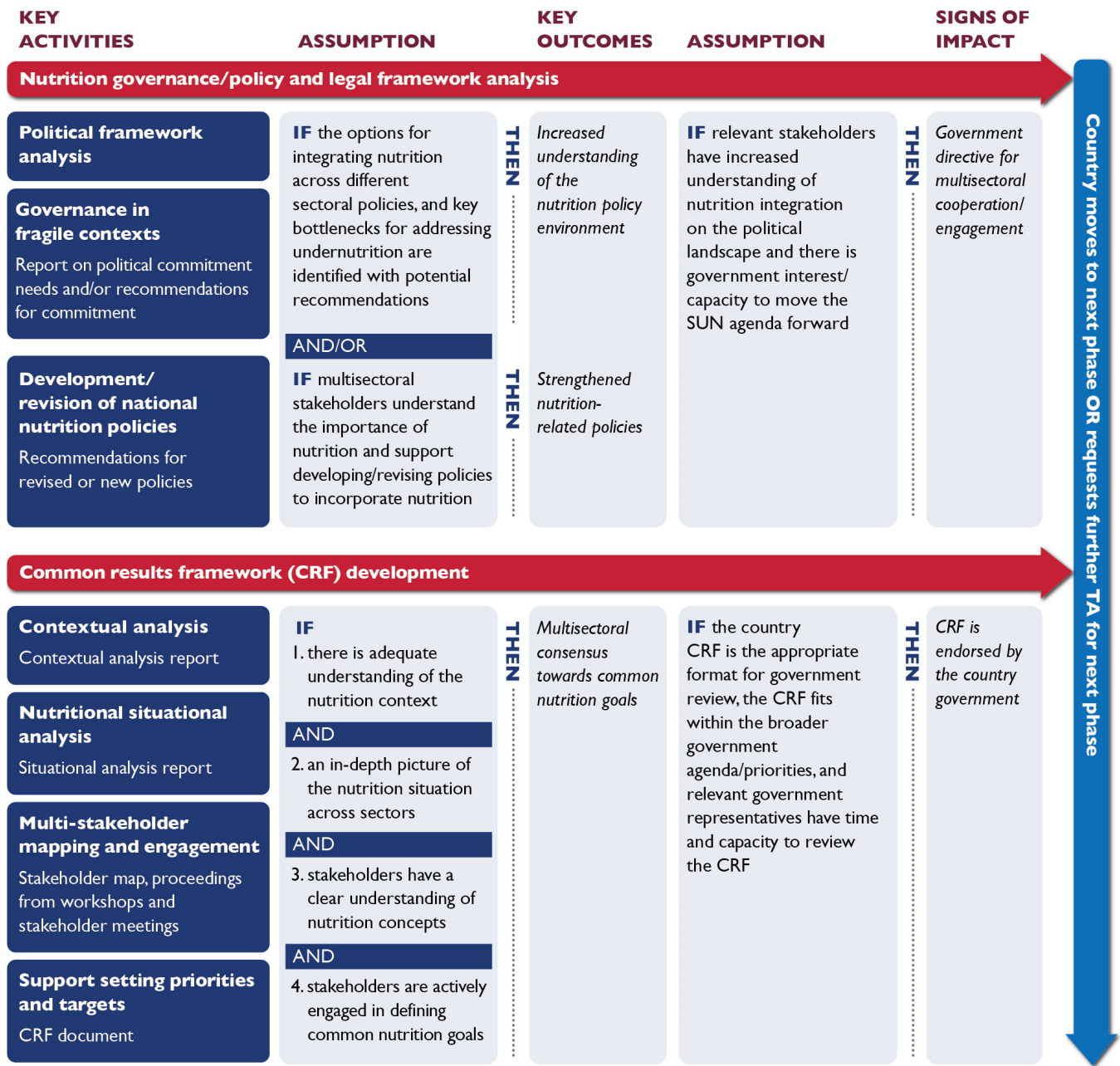
### How this approach was implemented

The assumption maps were one of several MERL approaches used for the project's M&E plan. The M&E team led the assumption mapping, with inputs from the relevant activity teams to incorporate information about the context, assumptions, and influencing factors. Data for the assumption maps were collected throughout the project, starting after the methodology was developed in the first year, and the maps were updated annually.

The involvement of both M&E and activity teams was an important facilitator to creating the assumption maps. For some interventions, the M&E team had the required technical knowledge and the activity team focused more on providing country-specific context. For other interventions, the activity team had to provide technical input about the TOC.

Another notable feature of the MQSUN+ assumption mapping process was the informal involvement of in-country stakeholders, which contrasted with the contribution analysis framework suggestion of involving them through an explicit validation stage. MQSUN+ informally collected contextual information (e.g., during regular meetings) on roadblocks, assumptions, and intervention progress from in-country participants such as government stakeholders, donor focal points, business network representatives, and civil society representatives.

FIGURE 2. ASSUMPTION MAPPING (CONTRIBUTION ANALYSIS) TO BUILD A CONTRIBUTION STORY ABOUT HOW AN INTERVENTION LEADS TO OUTCOMES AND IMPACT <sup>15</sup>



The map's horizontal progression shows how each activity may contribute to the system impact of improved coverage of multisectoral nutrition programs and policies. The vertical progression shows how the intervention's activities and external factors, such as country-led reforms, build on one another to strengthen nutrition activities and ultimately contribute to improved nutritional status of women and children. This figure is adapted from "Figure 5. MQSUN+ assumption map of technical assistance to FCDO" in the MQSUN+ brief, *Assumption Maps to Assess Signs of Impact from Short-Term Technical Assistance: Drawing from the MQSUN+ Retrospective Case Studies*, published by PATH (2021).

When creating assumption maps, the M&E team grouped their TA in different countries by type of TA, and each type of TA had its own assumption map template. These groupings allowed them to identify patterns in the evidence and assumptions among TA interventions. However, the team found that it was difficult to group such varied TA, despite apparent similarities. It also may have been difficult for the team to know what the next steps were in an assumption map for a specific country's intervention – despite being in the same TA group – if, for example, the team doing the mapping did not have the necessary contextual or technical knowledge.

The findings from the assumption maps (i.e., whether an intervention contributed to project outcomes and impact) informed intervention design in other countries. For example, while accounting for the different country contexts, the MQSUN+ team adapted findings about what TA aspects worked well (or did not work well) to new country activities. At the same time, the team conducting the exercise spent considerable time updating the assumption maps with new information annually and they ran out of time to adapt the existing interventions based on findings. Furthermore, MQSUN+'s assumption maps were not designed with the intention of using findings for adaptive management; the project had other mechanisms to facilitate adaptive management. To use contribution analysis findings for adaptive management, MQSUN+ would have benefited from incorporating the assumption maps into their adaptive management plans and scheduling a cutoff for assumption map iterations, allowing time to adapt interventions.

## Maternal and Child Survival Program

The Maternal and Child Survival Program (MCSP) was USAID's global flagship program from 2014-2019 for preventing child and maternal deaths.<sup>16</sup> MCSP worked to increase the coverage and use of high-quality reproductive, maternal, newborn and child health (RMNCH) interventions at the household, community, and health facility levels. This included supporting HSS interventions to improve the enabling environment for high-quality RMNCH services, such as improving the health workforce's clinical competencies, building health

system capacity to use data for decision-making, and revising health policies and guidelines to align with the evidence base.<sup>17,18,19</sup>

MCSP conducted contribution analyses for its country programs in Burma, India, and Rwanda. The global program was looking for better ways to tell the story about what the program was achieving across complex interventions in widely varying country contexts. While traditional M&E approaches can be a good fit for many service delivery strengthening interventions, they did not lend themselves well to telling the full story of MCSP's contributions in these three countries. This was due in part to the complexity of the system strengthening interventions being implemented. While the results of many of the interventions were assessed using both implementation research studies and performance monitoring data, a thorough understanding of project assumptions and contextual factors beyond typical quantitative indicators was needed, including qualitative data and information on program achievements.

Each country's contribution analysis investigated a tailored set of questions developed by MCSP staff at a collaborative workshop. For example, contribution questions included: How and to what extent did MCSP strengthen the health workforce's ability to address maternal and newborn health needs? How and to what extent did MCSP contribute to an increase in the voluntary uptake of postpartum family planning services? How and to what extent did MCSP contribute to improved quality of maternal and newborn care for patients?

Growing interest in complexity-aware MERL approaches, including among in-country stakeholders, informed MCSP's decision to implement contribution analysis. MERL resources including USAID's Learning Lab and the BetterEvaluation website helped inform the team's selection of the contribution analysis approach. Contribution analysis allowed MCSP to understand how their interventions led to expected outcomes or not, identify other factors that may have influenced the outcomes, and track progress against their theory of change.

## How this approach was implemented

Several factors made MCSP's use of the contribution analysis approach possible: the project had enough funding to sufficiently resource the exercise; there was an M&E team that could standardize the approach and findings across countries to more easily identify common themes; and there was interest and buy-in from local counterparts participating in the process.

### BOX 2: SAMPLE FINDINGS FROM MCSP'S CONTRIBUTION ANALYSES

These examples illustrate the types of findings that a contribution analysis can produce.

- Advocacy tools, such as a white paper on modern contraceptives, contributed to a more supportive policy environment in which to introduce new contraceptives in India.
- Mentorship interventions in Rwanda contributed to sustained improvement of health worker competencies and patient MNCH and family planning outcomes.
- Policy and planning interventions in Burma, such as TA to develop the National Health Plan, created an enabling environment to strengthen the government's training system for health workers.

MCSP staffed and implemented its contribution analyses differently in each country, depending on the scope of the contribution questions and the size of the in-country MCSP team, but a mix of M&E and program staff were always involved. All three analyses started in the second half of the country program's life cycle, meaning the exercises were simultaneously retrospective and prospective.

The teams conducting the contribution analyses quickly found that while the theoretical literature outlines a clear, stepwise approach, there is little practical guidance on how to implement each step. Therefore, the team developed internal worksheets to guide them through each step of the process. The first step in each country was to hold a TOC kickoff workshop with all MCSP team members. Even though each country program already had at least a basic theory of change, the workshop facilitated the creation of an updated TOC for specific interventions along with more detailed,

nested theories of change specific to the contribution questions. MCSP described the details of implementing their contribution analyses in three country-specific reports.<sup>20,21,22</sup> Depending on the scope of the exercise, the MCSP contribution analyses took 1-2 years from the TOC workshop through the dissemination of findings.

The three MCSP contribution analyses led to reports that included findings about whether and how the HSS interventions contributed to the outputs, outcomes, and impacts detailed in the theory of change. Box 2 provides a sample of the findings that were included in the reports. The findings pointed to the aspects of an HSS intervention that did or did not work – insights that could inform the design of future HSS projects. MCSP disseminated its findings at end-of-project country workshops. However, if the contribution analyses had started earlier, the teams could have designed an ongoing dissemination process to facilitate adaptive management.

## IMPLEMENTATION CONSIDERATIONS

Contribution analysis is a MERL approach that captures the complex interactions, assumptions, and external factors that lead to system- and beneficiary-level impacts. MQSUN+ and MCSP used this approach to track the outcomes and impacts of their activities. Their experiences offer the following key lessons for applying contribution analysis in different contexts. Each lesson includes recommendations for development and implementing partners to consider when designing MERL plans for HSS interventions.

**Contribution analysis can be an effective way to tell a nuanced story about an intervention's role in achieving observed outcomes.**

Contribution analysis provides a way to describe an intervention's impact beyond the quantitative data, and to attach relevant context to the numbers. For example, a contribution analysis goes beyond stating that 100 health workers had increased capacity and

explores the causal linkages between the project's interventions (e.g., health policy development) and the ultimate result (e.g., an increased supply of competent midwives). Among other questions, a contribution analysis can help answer the question, "We have the numbers... so what?" In the case of MCSP, the team used contribution analysis as a framework for synthesizing program data from studies, routine monitoring, and qualitative assessments to cohesively describe the intervention's role in observed results. Additional qualitative data filled in information gaps in MCSP's contribution story.

### BOX 3: RESOURCES REQUIRED FOR A CONTRIBUTION ANALYSIS

A question that many readers may have is what resources (financial, LOE, time) are needed for a contribution analysis. The cases highlighted in this brief illustrate how much the necessary resources vary based on the scope of the contribution analysis. Based on the information gathered in preparing this brief, it is not possible to provide a useful estimate. Partners considering a contribution analysis should examine the supporting references and possibly reach out to projects listed in the references to have a nuanced discussion of the context and necessary resources to conduct a contribution analysis.

Contribution analysis is optimal for assessing the effects of activities where traditional impact evaluations are not feasible or appropriate, or interventions that benefit from a more nuanced explanation of quantitative indicators. The following recommendations suggest ways that HSS practitioners can set up a contribution analysis for success. Further reading, such as MOMENTUM's guide to complexity-aware monitoring (CAM) approaches,<sup>23</sup> can provide additional recommendations for considering whether contribution analysis is the best fit for assessing an intervention.

### Recommendations

- **Zero in on a specific, high-priority contribution question or small number of questions.** Given the high potential for scope creep and a time-consuming exercise, it is important to focus on a

specific contribution question or small set of questions linked to key interventions (rather than to an entire project). One should not feel the need to explore all aspects of a project's theory of change in one contribution analysis. Instead, identify one or two interventions that would benefit from a nuanced explanation of quantitative indicators, and define the attribution problem around those interventions. For example, collecting M&E indicator data on the number of health workers trained might not provide the contextual information needed to adjust programming. By contrast, a contribution analysis could investigate *whether* the trainees played a role in reducing a district's maternal mortality, the *nature* of the linkages between the intervention and impact, and if or how other potential factors influence change at each stage of the intervention.

- ***Consider conducting a contribution analysis on interventions where causality cannot be measured using impact evaluation methods, or where many assumptions about causality must be made.*** Contribution analysis offers a systematic framework for organizing evidence on the theory of change. If there is an intervention – such as creating a supportive supervision program in public health facilities – that works upstream of observed health outcomes and is strongly influenced by external factors, contribution analysis helps collate the information needed to validate the theory of change, assumptions, risks, and external factors. When considering whether to conduct a contribution analysis, an intervention may be a good fit if many factors simultaneously influence the outcome and their independent influence cannot be isolated, and if a more traditional MERL approach (e.g., one using an experimental design) is not possible.
- ***Select a contribution question whose answer will provide necessary evidence, including about externalities influencing the outcomes, to strengthen the TOC and guide implementation.*** In an intervention where HSS practitioners are considering a programmatic adaptation (e.g., scaling up), but the causal linkages are unclear, contribution analysis may provide evidence to inform the



decision. Contribution analysis can provide nuanced information about causal linkages when an experimental design is not feasible, yet evidence is still needed for program design and adaptation. If the contribution question is created to fill a need for evidence, the contribution analysis will be fit-for-purpose and the findings will be conducive to guiding implementation.

## Start planning the contribution analysis early.

Ideally, development partners, implementing partners, and health system stakeholders should plan a contribution analysis from the beginning of a project. Including a contribution analysis in the design phase of an intervention will ensure it is resourced and developed properly. This may include ensuring that MERL funding is part of the program budget from the beginning and providing opportunities for the team to collect information on assumptions and contextual factors throughout implementation. Even when planning the contribution analysis during intervention design is not possible, the method can still be valuable. In both use cases discussed here, the implementing partners began the contribution analyses after the programs had already started. However, by planning a contribution analysis early, HSS practitioners maximize the time remaining in the program to consider the findings and whether the contribution story's assumptions are holding, and to adapt and scale implementation accordingly.

## Recommendations

- Set clear plans and timelines for evidence gathering and revisions to the contribution story.*** In the MQSUN+ project, the team's ability to adapt future work based on findings was limited by the impending end of the project. While their findings helped in designing scopes of work in other countries, the fact that the assumption mapping was not linked to their adaptive management activities meant there was little time to adapt interventions within a country. By starting a contribution analysis early and setting clear plans and timelines for implementing the analysis, partners will optimize
- their ability to adjust and adapt their interventions based on findings.
- Supplement tools and instructions with mentoring.*** While theoretical guidance documents on contribution analysis exist, there is a lack of widely available tools and templates that HSS practitioners can use to implement a contribution analysis. Developing tools, templates, and guides at the start of the exercise, with input from someone knowledgeable about contribution analysis, will facilitate a common understanding of the methodology across team members. The teams implementing the contribution analysis may also benefit from targeted mentoring from colleagues more experienced with this emerging approach or other complexity-aware approaches, to ensure they understand how to apply the tools.
- Incorporate collaborative interpretation and dissemination of the findings into the contribution analysis process.*** While interpretation of the results is part of Step 4 of a contribution analysis, the important matter of dissemination is not covered in the six steps. The team should consider from the outset how to involve stakeholders in the contribution analysis, particularly when it comes to interpreting the evidence and disseminating the findings. Interpretation and dissemination plans should address which stakeholders to include, the format of engagement, and the timing of engagement with each stakeholder during the iterations of evidence gathering and contribution story revision. Some projects may find it helpful to disseminate findings as they become available with a small group of stakeholders to facilitate adaptive management, while others may wish to disseminate with a wide group of stakeholders at the end-of-project events. As seen in the MQSUN+ case, the project disseminated findings between countries to inform adaptation and learning. Either way, planning dissemination activities from the design phase will ensure that the activities are intentional and fit-for-purpose.
- Create a plan for translating findings into action.*** This recommendation, like the previous one, is applicable to many complexity-aware monitoring approaches. When planning a contribution analysis,

HSS practitioners should think carefully about how the findings will be used to adjust course, either within the intervention's context or in a different context. While not specific to contribution analysis, an important consideration here is that there may be a need for capacity strengthening among HSS practitioners regarding how to translate findings into action. The MQSUN+ experience highlights that sharing findings from an assumption map helped inform intervention design in a new country program. However, MQSUN+'s findings were not

used to change course within a country program because assumption mapping was not included in the project's adaptive management plan. Similarly, MCSP's contribution analyses started after the country programs were almost over, leaving no time to inform adaptive management. Therefore, when planning a contribution analysis, considering whether and how findings will be used for adaptive management is a key step.

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<sup>23</sup> MOMENTUM Knowledge Accelerator, “A Guide to Complexity-Aware Monitoring Approaches in MOMENTUM Projects.”

## ANNEX: METHODOLOGY FOR CREATING THIS BRIEF

The authors conducted a targeted literature scan of resources on Collaborating, Learning, and Adapting (CLA) and MERL in international development to identify promising complexity-aware MERL approaches. Sources included USAID's Development Experience Clearinghouse; the World Bank; and MERL, CLA, adaptive management, and implementation research projects.

After consulting an Advisory Committee comprised of MERL practitioners in the HSS space, the authors focused on five MERL approaches more thoroughly, conducting a second literature scan using the same sources noted above, plus a round of consultations with implementing partners to understand how the five approaches have been used in HSS. The five approaches examined were contribution analysis, developmental evaluation, process tracing/analysis, outcome harvesting/mapping, and scenario planning. We evaluated each approach based on whether it:

- Captures and adapts to systems complexity
- Contributes to HSS intervention design
- Has utility for guiding local implementation and adaptation
- Incorporates a data collection methodology for quantitative and qualitative data
- Provides a clear step-wise approach for how it should/can be used
- Has potential use cases from the authors' literature scan and consultations

Based on findings from this exercise, we selected contribution analysis and outcome harvesting as the topics for the first two HSS Practice Spotlight Briefs in the MERL series. Outcome harvesting is addressed in a separate brief to be published in Spring 2022.

After choosing contribution analysis as the topic of this brief, we selected use cases originally identified through a snowball approach, literature scan, and consultations with the Advisory Committee and implementing partners who had experience using contribution analysis to assess HSS interventions.



### About the Health Systems Strengthening Practice Spotlight Series

The Health Systems Strengthening Practice Spotlight series is an initiative of USAID's Office of Health Systems. Practice Spotlight briefs contribute to the global knowledge base in health system strengthening and support implementation of USAID's Vision for Health System Strengthening 2030 and the accompanying Health System Strengthening Learning Agenda. Learn more:

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