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Maternal and Child Survival Program

MCSP Burma's impact on strengthening the health workforce for a better tomorrow:

Results from a contribution analysis

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The Maternal and Child Survival Program (MCSP) is a global, $560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries, as well as other countries. MCSP is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment.

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Acronyms and Abbreviations

ANC	Antenatal care
CA	Contribution analysis
EHO	Ethnic health organization
EPHS	Essential Package of Health Services
IP	Infection prevention
IR	Intermediate result
KMC	Kangaroo mother care
LDHF	Low-dose, high-frequency
L&PIC	Learning and performance improvement center
MCHIP	Maternal and Child Health Integrated Program
MCSP	Maternal and Child Survival Program
MNCH	Maternal, newborn, and child health
MNH	Maternal and newborn health
MNMA	Myanmar Nurses and Midwives Association
MOHS	Ministry of Health and Sports
NHP	National Health Plan
PY	Program Year
QI	Quality improvement
TOC	Theory of change
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

Burma's 2010 election led to a civilian government in March 2011, lifting the country from decades of political and economic isolation [1]. After the democratic transition, the health sector changed but health indicators still lag behind as compared to other countries in the region [2]. The health system in Burma faces challenges [3], including wide geographic, ethnic, and socioeconomic disparities related to access to quality health services [4]. For example, the 2014 Burma census reported that the maternal mortality ratio was 282 deaths per 100,000 live births, with wide variations between urban and rural areas [5]. The neonatal mortality rate, per the latest Demographic and Health Survey, is 25 deaths per 1,000 live births, with large variations among states and regions [6].

The United States Agency for International Development (USAID)'s flagship Maternal and Child Survival Program (MCSP) supported the work of Burma's Ministry of Health and Sports (MOHS) toward its strategic priority to strengthen human resources for health by building the capacity of existing health workers to deliver lifesaving maternal, newborn, and child health interventions.

In partnership with the MOHS, MCSP conducted an analysis to document contributions made by the program toward health systems strengthening efforts related to the health workforce in Burma. More specifically, MCSP Burma aimed to reduce maternal and newborn mortality and morbidity by strengthening the midwifery profession. This work was done by creating an enabling policy environment to support the best practices for maternal and newborn health (MNH) that are part of the MOHS national strategic plans and guidelines. Additional focus areas included improvement of the quality and effectiveness of midwifery education, training, and professional organizations.

The methodology used to assess MCSP's work was contribution analysis (CA), whereby cause-and-effect relationships between activities and results were explored against theories of change to make credible claims about the contributions made by MCSP [7]. CA provided a framework for compiling and assembling evidence to tell a cohesive, robust story about MCSP's contributions. This framework allows evaluators to explore possible cause-and-effect relationships between activities and results as an approach for making credible claims about the contribution being made by an intervention or set of activities, based on confirming the theory of change for an intervention [7]. The use of this approach is novel for evaluating the impact of complex MNH programs.

This analysis set out to answer the following questions and to assess evidence to support these questions:

- How did MCSP support the MOHS to increase the availability and capacity of health workers to address MNH needs?
- How did MCSP contribute to strengthening the health workforce to improve the quality MNH services?

Through a six-step CA process, MCSP's efforts to support the MOHS in strengthening the health workforce were demonstrated quantitatively (through improvements in pre- and post-training assessments) and qualitatively (through key informant interviews with stakeholders). The findings from this analysis showed that MCSP supported the MOHS to increase the availability of competent health workers to address MNH needs through policy development, advocacy, and planning efforts, resulting in an improved training system. This improved training system led to more competent trainers, with improvements seen in clinical training skills from 44% to 95% across different training assessment areas (e.g., facilitation, demonstration, coaching, and knowledge assessments) among members of the Myanmar Nurses and Midwives Association before and after MCSP-supported training. The strengthened trainers had the skills to deliver more effective training, which leads to more competent midwives.

MCSP supported the MOHS in strengthening the health workforce to provide quality MNH services through the implementation of a quality improvement (QI) approach and by promoting a supportive system for health workers to apply their updated clinical skills. Through support for advocacy and establishment of and use of a

QI approach, providers developed the capacity to apply QI standards and approaches and QI members were able to facilitate the QI process. Implementation of the QI process led to improvements in normal labor and infection prevention practices from approximately 20% to 90% in different clinical sites. Evidence from the literature suggests that QI efforts can then influence service delivery.

Improving health service coverage and realizing the right to the enjoyment of the highest attainable standard of health is dependent on the availability, accessibility, acceptability, and quality of the health workforce and the services they provide. The MOHS led the way for improvements in the quality of MNH through MCSP's support. Further data should be collected to better articulate the project's influence on outcomes and impact.

I. Introduction

1.1 Context

Burma's 2010 election led to a civilian government in March 2011, lifting the country from decades of political and economic isolation [1]. After the democratic transition, the health sector evolved, but health indicators still lag behind when compared to other countries in the region [2]. The 2014 Burma census reported that the maternal mortality ratio was 282 deaths per 100,000 live births, with wide variations between urban and rural areas [5]. The neonatal mortality rate as per the latest Demographic and Health Survey is 25 deaths per 1,000 live births, with large variations among states and regions [6]. Infant mortality in Myanmar is 43.8 deaths per 1,000 live births, which is more than two times higher than that observed in Southeast Asia [8].

One of the key contributors to poor maternal and newborn health (MNH) outcomes is the poor quality of facility-based care [9]. Evidence suggests that effective, high-quality care during pregnancy and childbirth can significantly reduce the numbers of maternal deaths, stillbirths, and early neonatal deaths. Improvements in the quality of preventive and curative care during late pregnancy, childbirth, and the early newborn period could have the greatest impact on maternal and newborn survival [10]. There is recognition by the Myanmar Ministry of Health and Sports (MOHS) that there are disparities in access to and quality of health services that particularly affect ethnic minorities, the urban poor, and people living in rural and remote areas [11].

Another major contributor to maternal and newborn mortality is health worker shortages. The number of health care providers available in Burma per 10,000 people is only 14, which is well below the recommended 23 per 10,000 recommended by the World Health Organization (WHO) in order to achieve 80% coverage of skilled birth attendance [21]. An analysis by the United Nations Population Fund (UNFPA) suggested that when midwives are educated and regulated by international standards, they have the competencies to deliver 87% of the 46 essential reproductive, maternal, and newborn health services needed by women and newborns [13]. As part of its 5-year (2014–2019) reproductive health strategic plan (2014–2018), the MOHS is continuing to focus on health systems strengthening by addressing human resource constraints, including increasing the availability of midwives, addressing issues of retention, emphasizing competency-based training, and ensuring an enabling environment for providing quality services [11].

1.2 MCSP Burma Program and Interventions

The Maternal and Child Survival Program (MCSP), is a global, $560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries, as well as other countries. Implemented in Burma between July 1, 2015 and September 30, 2018, MCSP focused on the perinatal period, from pregnancy though the postpartum period and newborn care, with a focus on evidence-based, high-quality interventions to reduce the leading drivers of maternal and newborn deaths.

As previously mentioned, a strategic priority for Burma's MOHS is to strengthen human resources for health by building the capacity of existing health workers to deliver lifesaving maternal, newborn, and child health (MNCH) interventions. Many health workers have not received technical updates in years and most education and training has been purely didactic instruction within a classroom and limited to theoretical learning. Additionally, most health facilities do not deliver care according to evidence-based technical standards, meaning that they are not suitable to serve as effective training grounds for health care workers. As a result, health workers' abilities and confidence to apply skills in real clinical settings is limited, and poor retention of rote theoretical knowledge may result in poor performance. Therefore, competency-based continuing professional development education, delivered in a clinical setting operating to at least regional standards, is a key to strengthening health workers' abilities to provide lifesaving care.

MCSP Burma carried forward the work that was accomplished under the USAID-funded Maternal and Child Health Integrated Program (MCHIP), a 14-month program that ran 2013–2014. MCHIP/Survive & Thrive worked with MOHS and national professional associations to lay the foundations for improving maternal and newborn health (MNH) outcomes by reviewing the existing landscape of health care policy and practice, providing support for strengthening professional associations, and facilitating central-level discussions on high-impact interventions.

The overall goal of MCSP's work in Burma was to respond to the MOHS' strategic priorities for improving MNCH by demonstrating, documenting, and transitioning capacity to counterparts to make sustainable improvements in the health system. This work was to be accomplished through three intermediate results (IR):

- IR 1: Policy environment strengthened for improving quality and equitable access to MNCH services
- IR 2: Health workforce strengthened to support effective delivery of MNCH components of the Essential Package of Health Services (EPHS)
- IR 3: Quality health service delivery strengthened in targeted technical and geographical areas

MCSP Burma underwent an external evaluation at the request of USAID in September 2018. The main questions from that evaluation were as follows: 1) To what extent did MCSP assistance influence in-service training practices and related systems to improve MNCH? 2) How have MCSP's approaches contributed to the potential sustainability of project results? 3) What are the specific lessons that can be learned to inform future programs that aim to strengthen systems for capacity building related to MNCH, particularly at the township level? While there is some overlap between the focus of that evaluation and contribution analysis (CA), CA was initiated prior to the external evaluation and used an approach that takes into account broader health systems level contributions made by MCSP. For the purposes of this analysis, MCSP staff focused on IRs 2 and 3.

1.3 Rationale for Using Contribution Analysis

Developed by John Mayne in 2001, CA is an evaluation approach used to examine the extent to which observed results from a program are due the program's activities rather than other factors [14.]. The use of this framework allows evaluators to explore possible cause-and-effect relationships between activities and results as an approach for making credible claims about the contribution being made by an intervention or set of activities, based on confirming the theory of change (TOC) for an intervention [15]. This framework also helps to answer the following question: "In light of the multiple factors influencing a result, has the intervention (initiative) made a noticeable contribution to an observed result and in what way?" [16].

One distinctive feature of CA is that it offers a systematic way to be able to make credible claims of impact [16]. A strength of CA is its ability to unpack impact in a way that explicitly examines multiple actors and influences and answers questions about what worked and why [17]. Another key advantage of using CA in the context of MCSP is that routine program data, both qualitative and quantitative, can be used to support causal claims rather than more elaborate evaluation designs that are not feasible to undertake because of time and resource constraints. It is important to note that while incorporating use of CA from the inception of the program is favorable, the approach can also be used midway or toward the end of implementation, as what was done here with the Burma analysis.

II. Methods

MCSP followed the six-step CA implementation process designed to organize evidence to construct an "impact story" [15]. These steps build a case to demonstrate a program's contribution to change while also considering other factors that may have affected this change as well. This section will discuss how the methodology was applied to IRs 2 and 3.

Step 1. Set out the cause-effect issue to be addressed

MCSP Burma decided to apply CA after the program had been underway for 2 years. The first step in developing the CA story was to hold a 3-day kickoff workshop in Yangon, Burma, in May 2018. Workshop participants included MCSP staff including: field officers and managers from Magway, Sittwe, Lashio, Taunggyi, Pathein, and Yangon offices and MCSP headquarters staff from Washington, D.C. Participants were selected based on their scopes of work within the program and their knowledge of how implementation of interventions was rolled out across the country.

Participants focused on IRs 2 and 3. These IRs were selected because they were the main focus areas for program implementation and allowed for examination of the cause-effect relationships through available data. The rationale for selecting each IR follows:

- IR 2: It is the health care provider who delivers services to patients based on policies and on evidence-based guidelines. It is therefore essential that health care providers have the skills, competencies, and supporting tools to deliver lifesaving interventions. As part of IR 2, facilities were developed to be standardized "training grounds" for health workers to learn or update their clinical skills and to be able to practice those new or updated skills.
- IR 3: The quality of service delivery in Burma is inconsistent and varies across health care facilities. The purpose of analyzing the results of this IR is to demonstrate approaches that, if scaled up, could help improve the quality of service delivery, ultimately having a positive effect on health outcomes.

IR 1 was excluded since the policy work that was done as part of IR 1 became part of routine service delivery when applied by health care providers under IR 2 and thus was captured as an input in that story. The work under IR 1 was essentially the foundation for ensuring that IRs 2 and 3 could be achieved.

This analysis set out to answer the following contribution questions and to assess evidence to support the contribution claims:

- How did MCSP support the MOHS to increase the availability and capacity of government health workers to address MNH needs?
- How did MCSP contribute to strengthening the government health workforce to improve the quality of MNH services?

Step 2. Develop the theory of change

The MCSP Burma program had originally developed brief narrative TOC statements for each IR in the annual program work plans. In May 2018, workshop participants developed IR-specific TOCs in the flow-chart format recommended by Mayne. The components of the TOCs included: inputs; activities; changes to capacity, knowledge, and skills; changes in behavior and practices of the health workforce; policy and resources; and unanticipated results, direct benefits, and overall wellbeing impact of women and newborns for each IR. The TOCs that were developed also include external influences, assumptions, and factors that, while not directly related to the intervention, could have had positive or negative effects on the activities and subsequent results. Alternate explanations for changes were also considered.

The TOC model that was used for this analysis is the "COM-B" TOC. The COM-B model was developed by Michie, Stralen, and West, and is based on their extensive synthesis of behavior change models in the literature, where behavior (B) occurs as the result of interaction between three necessary conditions: capabilities (C), opportunities (O), and motivation (M) [18]. This model was used because most interventions at some level involved changing the behavior of different target populations within the program [18].

MCSP Burma's goal and anticipated IRs were based on the premise that maternal, newborn, and child deaths will be averted if the capacities of the health workforce are strengthened, since health workforce strengthening is one of the pillars of overall health systems strengthening. While it was possible to delineate IR 2 and IR 3 activities from one another, the anticipated outcomes were expected to be mutually beneficial for developing a stronger health workforce. The activities across the two IRs were intended to reach providers, community health workers (CHWs), and clients and their families, resulting in: changes in capacity (knowledge, attitudes, skills, etc.) of those reached by the program's goods and services; behavioral changes, or changes in practice that occur in this group; direct benefits or improvements; and long-term wellbeing changes such as a reduction in maternal, newborn and child mortality.

The TOCs for IRs 2 and 3 as seen in Annex 1 and 3 (accompanied by simplified versions in Annexes 2 and 4) looked at program inputs and activities, which broadly encompassed the capacity building of health providers and behavior change interventions at community and facility levels. The TOCs underwent several iterations until agreement was reached among the CA workshop participants and other key MCSP staff.

Assumptions

Assumptions can make explicit why program implementers think that their interventions can and will work. During the CA workshop, participants identified and articulated assumptions that they believed to be true and would underlie the change processes shown in the TOCs. When possible, evidence was collected to support or refute the assumptions. There were similarities and some overlap between the assumptions in each IR. A full assumptions list can be found in Annex 5.

Unexpected Results and External Influences

As part of the development of the TOCs, several external influences and unexpected results were documented that were potentially neutral, positive, or negative, which may have affected MCSP's outcomes of interest. More information on the effects of these was compiled as part of Step 3 and is presented in the Findings Section.

Step 3. Gather the existing evidence on the theory of change

Based on the TOCs developed during the CA kickoff workshop in May 2018, data sources were mapped against the causal pathways in the TOCs to identify which evidence existed and to identify areas that required additional data. Data sources used in the CA story included annual and quarterly program reports, work plans, assessments against clinical standards, the MCSP training database, qualitative interviews with key stakeholders, and findings from the external evaluation. Scientific papers were also accessed and reviewed to provide information on causal pathways for which the team was unable to obtain data. In summary, the team reviewed and analyzed over 33 data sources (excluding scientific papers) in order to substantiate contribution claims with evidence. Further consultations were also held with the project's senior management team. Data on changes in population-level health status were not available.

Step 4. Assemble and assess contribution claim and challenges to it

During the CA workshop, participants identified the top results/impact contribution statements based on the TOCs. Results from the stakeholder consultations together with the mapping against data sources and triangulating data led to the identification of data gaps that could be filled both by additional small-scale

qualitative data collection. Based on the evidence gathered, and in line with the TOCs, several successive draft versions of the CA story were written.

Step 5. Seek out additional evidence

Plans were made during the CA workshop to conduct additional small-scale qualitative data collection with key informants; however, it was later learned that this data collection effort would need to be approved by a local institutional review board. It was therefore not feasible to collect this additional qualitative data within the short remaining program operation timeframe. Fortunately, the results of MCSP Burma's external evaluation, which included qualitative data collection with key stakeholders, were also available. Key findings and evidence from the external evaluation report have therefore been incorporated into this analysis.

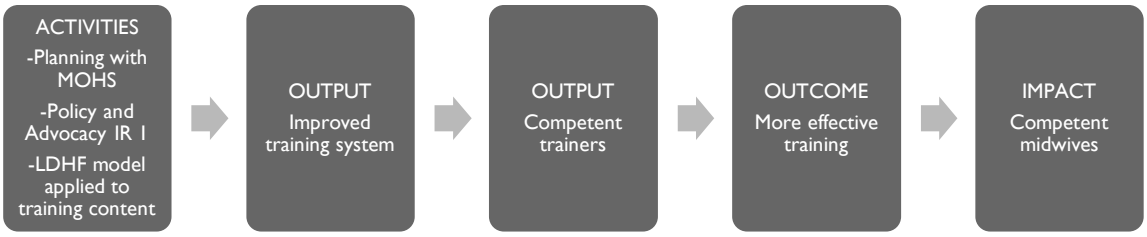
Step 6. Revise and strengthen the contribution story

This step, which involved finalizing the TOC, required an iterative process whereby the contribution statements and story were presented to USAID.

III. Findings

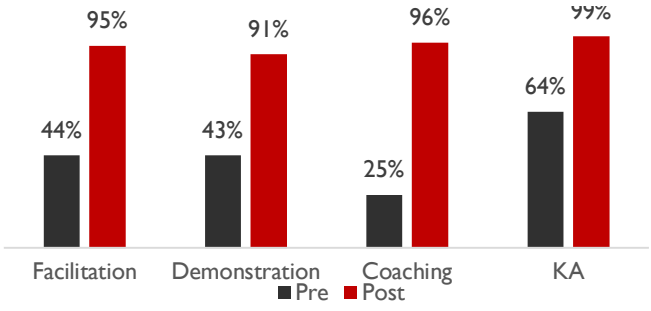
The following statements describe MCSP's contributions to health workforce strengthening.

Contribution Statement #1: MCSP supported the MOHS to increase the availability of competent health workers to address MNCH needs



MCSP's policy development, advocacy, and planning efforts with the MOHS set the stage for interventions to develop an improved training system: To improve the training system, a strong policy foundation was first needed, along with operational guidance. The National Health Plan (NHP) 2017–2021, which officially launched on March 31, 2017, aims to strengthen the country's health system and pave the way toward universal health coverage. Its main goal is to extend access to a Basic Essential Package of Health Services to the entire population while increasing financial protection. In Program Year 3 (PY3), MCSP provided technical support for the development of the NHP and appointed an MCSP team member to the NHP Implementation Monitoring Unit under the minister's office. MCSP provided technical support for all of the NHP Implementation Monitoring Unit's activities, including costing of the Basic Essential Package of Health Services, formulating the NHP's first annual operational plan and its monitoring and evaluation framework, drafting clear job descriptions for the different cadres involved in the delivery of the Basic Essential Package of Health Services, and developing a template for township health planning. In addition, using the findings from a review of national malaria in pregnancy policies, guidelines, and training materials under the MCSP predecessor program (the Maternal and Child Health Integrated Program) and an assessment of antenatal care (ANC) services in Burma completed in PY2, MCSP successfully advocated with the MOHS for the establishment of national ANC guidelines [19]. MCSP assisted the MOHS to develop drafts of the first-ever national ANC guidelines and convened technical meetings to refine them. MCSP also supported the MOHS in updating the national Integrated Management of Neonatal and Child Illness guidelines to be in line with global recommendations and best practices. The program facilitated this process through close consultation with the MOHS in reviewing, adapting, and translating three resources. For the newborn component of the guidelines (0–2 months), they adapted the American Academy of Pediatrics Essential Care for Every Baby and Essential Care for Small Babies training modules. For the child health component (2–59 months), they adapted the WHO Integrated Management of Childhood Illnesses computerized training tool. Of note, the newborn guidelines allow for nasogastric tube insertions in feeding small babies to be performed by basic health staff (health assistants, midwives, public health supervisors, lady health visitors, and CHWs), which was not recommended previously at the level of midwifery in community settings. In addition, the

Graph 1: MNMA Trainers Scored Average 95% in Post-Test of Clinical Training Skills



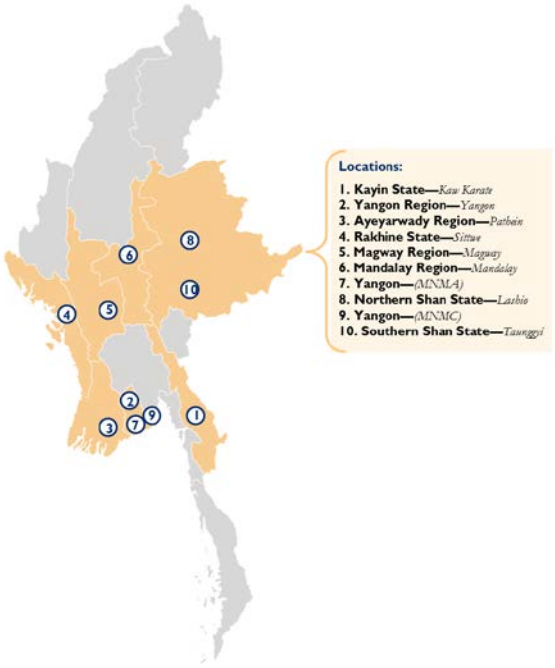
updated version of the child health guidelines has two new chapters: management of HIV-infected children and child development [19]. The guidelines launched nationally on May 30, 2017.

Box 1: What is a learning and performance improvement center (L&PIC)?

An L&PIC is a physical space that serves as a learning hub in the health system and a repository for learning materials, and they are affiliated with a clinical site (hospital). Affiliation with a clinical site provides additional opportunities for learners to build competencies by enabling them to transition from interacting with simulation models to interacting with clients. L&PICs are embedded into a state/regional level and are managed by a skills lab coordinator, along with skills lab assistants and skill lab helpers. Plans to fund these centers should be included in state/regional training budgets to ensure sustainability.

MCSP worked to improve the training system, which led to the availability of competent trainers: First, national capacity building efforts were revitalized through a strengthened vertical training cascade that entailed reinstating township training teams. MCSP supported the policy developed that made these changes possible. This resulted in a revival of state/regional training teams and the establishment of L&PICs (Box 1) [20]. MCSP assisted the MOHS in rolling out the updated national service delivery guidelines during training of providers through the L&PICs.

Figure 1: Map of L&PIC locations



A total of 10 L&PICs were established during the life of the project (see Figure 1) in six states/regions. MCSP-supported areas include a population of approximately 28,049,905 people in 41% of the total number of states/regions (7 out of 17). Through the program's support, state and regional trainers were able to use to L&PICs to improve their training skills.

Through the training-of-trainers sessions that used a low-dose, high-frequency (LDHF) approach (Box 2) emphasizing shorter but more frequent training, the training skills of state, regional, ethnic health organization (EHO), and township training teams and Myanmar Nurses and Midwives Association (MNMA) leadership improved from 44% across four skills areas to an average of 95% across those same areas between the pre-test and the post-test (Graph 1). Results from the pre- and post-training assessments of the EHO trainers were similar, showing an increase from an average of 53% across the four skills areas to an average of 94% (data not shown) [21]. Trainers were exposed to more up-to-date, evidence-based training skills such as facilitation, demonstration, coaching, and knowledge assessments.

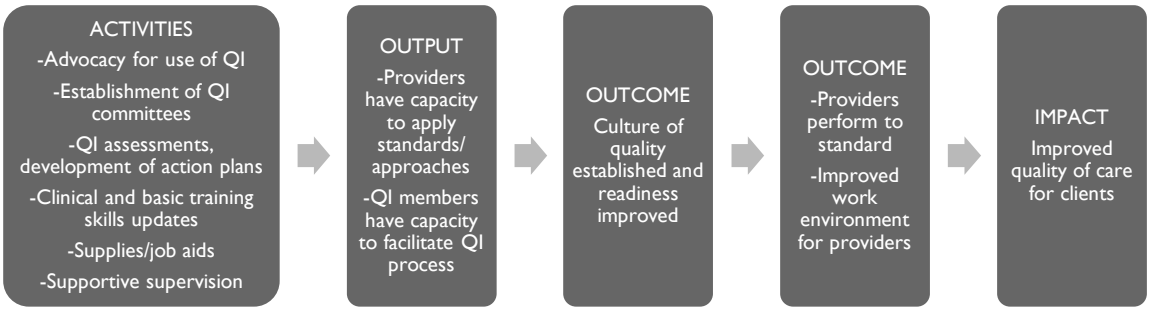
Competent trainers supported through MCSP provided more effective trainings: At 6–9 month post-training skills retention assessment, trainers retained 82% of the knowledge and skills they had learned (88% Master Trainers from State Health Training Teams; 81% Master Trainers from EHOs; 50% Master Trainers from the University of Nursing).

Box 2: What is the low-dose high frequency (LDHF) approach?

- Competency-focused learning activities concentrate on what providers "need to know"—eliminating what is "nice to know."
- Simulation- and case-based learning focuses on skills practice, problem-solving, role plays, and other interactive exercises. Dosing and frequency depend on topic, extent of the learning gap, and learner characteristics.
- Appropriately spaced, brief periods of learning deliver targeted information in 1 day or over several days.
- Team-focused training ensures that all providers have updated clinical practice and can work together to implement improvements in care.
- Facility-based delivery decreases absenteeism, improves teamwork, addresses onsite barriers, and promotes changes to provider performance.
- Ongoing practice and quality improvement activities reinforce learning and transfer to clinical practice.

Effective training led to a more competent health workforce: The literature supports the claim that hands-on simulation training as promoted through the L&PICs can foster a high level of care (Box 2) [22]. Walton et al. assessed effectiveness of low-technology, simulation-based training through the PRONTO (*Programa de Rescate Obstétrico y Neonatal: el Tratamiento Óptimo y Oportuno*) program [23]. Results showed that those who participated in the intervention arm implemented more practices to decrease neonatal mortality than the control ($p<0.001$). Stanley et al. reported that minimal theory, accompanied by structured and practical teaching, is most effective for ensuring behavior change in resource-limited settings [24]. Nelissen et al. measured levels of knowledge, skills, and confidence before, immediately after, and 9 months after simulation-based training in obstetric care in order to understand the impact of training on these components [25]. Results showed that while there was a slight degradation in performance of basic delivery skills, the results confirm the importance of continuous training and practice [25]. This evidence suggests that when training is effective, health workers have the capacity to provide better care.

Contribution Statement #2: MCSP supported the MOHS in strengthening the health workforce to provide quality MNH services through the implementation of a quality improvement (QI) approach and by promoting a supportive system for health workers to apply their updated clinical skills

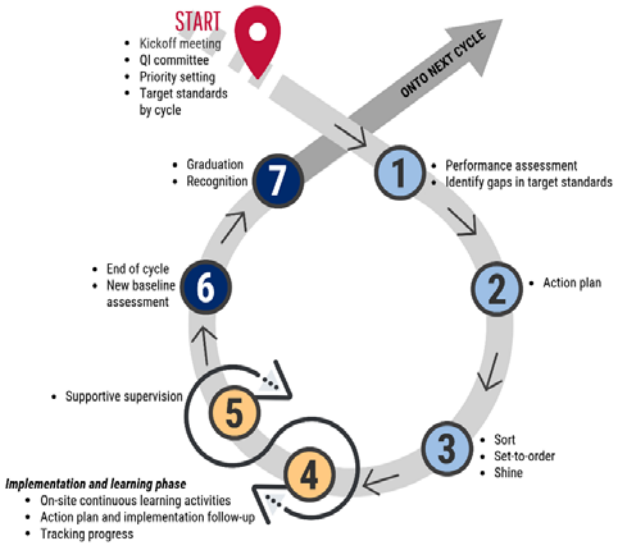


Providers have the capacity to apply standards and QI members have the capacity to facilitate the QI process, leading to establishment of a culture of quality: The approach to improving MNH quality was to implement a replicated modification of a QI approach that was introduced in Burma through a Jhpiego-led,[1] General Electric Foundation-funded project. Through that project, in collaboration with the MOHS's Maternal and Reproductive Health Division, a standards-based QI approach and MNH quality standards were adapted for the Burma context in 2014 [21]. With continued significant engagement of the MOHS, the adapted QI model and MNH standards were then introduced at three facilities representing three different levels of the health system in the Yangon Region. Key steps taken at each facility can be found in Box 3. These standards and QI approach defined the minimum standards for a range of MNH services and helped to standardize and improve the quality of services in participating facilities. The QI approach is

[1] Jhpiego is an international, nonprofit health organization affiliated with the Johns Hopkins University.

implemented in cycles (Figure 2). Formal measurement of facility performance against standards was conducted at the beginning and end of the cycle, which usually lasted from 6 to 9 months. Generally, it takes 18 to 24 months to see the degree of improvement required for meeting the standards once implementation begins (i.e., achievement of 80% of the verification criteria for a standard) [21]. A total of five facilities, each associated with an L&PIC, partook in the evaluation.

Figure 2: QI Cycle



QI assessors assessed the autoclaving process during an infection prevention midline assessment; Photo: MCSP/Burma

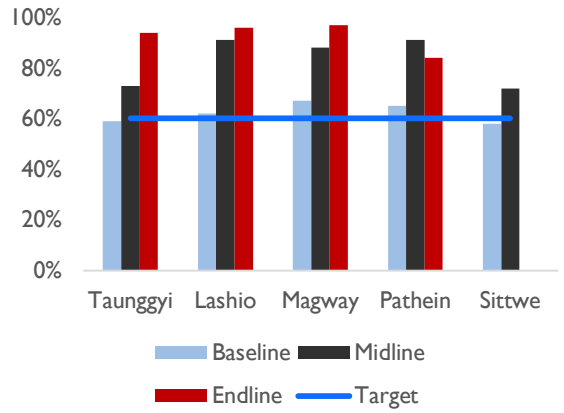
Box 3: What are the key steps in the QI process implemented at facilities?

- Work with each facility to identify a hospital QI team.
- Identify QI assessors from facility and conduct QI assessment using QI standards (led by the hospital QI team and using the MOHS-endorsed standards).
- Develop and implement the QI action plans, including mentoring, coaching, and supervision of providers.
- Support periodic meetings to track progress on performance improvement and plan to address any further performance gaps.
- Measure performance against standards at end of each QI cycle.

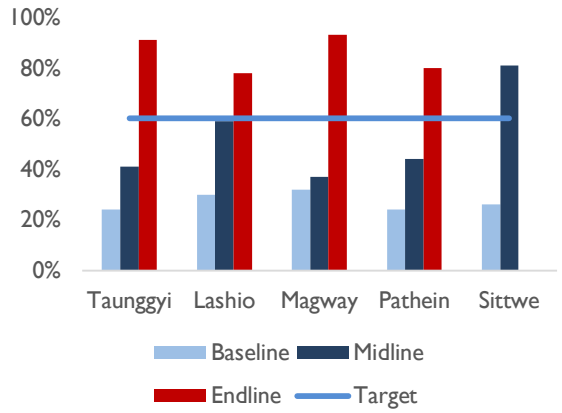
A culture of quality led to improvement in provider performance and compliance with evidence-based standards: At baseline, facilities supported by MCSP met an average of 45% of the standards verification criteria, or specific tasks that are used for the purposes of assessment; at endline, the same facilities met an average of 90% of the standards verification criteria. Graphs 2 and 3 show how the five facilities performed at baseline, midline, and endline (in progress)—in 6-month intervals against pre-determined clinical standards checklist [26]. Graph 2 summarizes results for normal labor and delivery standards, while Graph 3 shows provider performance in infection prevention (IP) in relation to normal labor and delivery. These assessments were conducted by MCSP program staff observing client-provider interactions and/or preparation/cleaning up of service delivery area. Improvements were made across all facilities between assessment periods, which occurred on three occasions.[2]

[2] The standards assessed included: 1) all rooms providing MNH services have appropriate IP materials; 2) providers from all MNH service delivery room follow basic IP practices; 3) designated health providers or appointed staff from each MNH service delivery unit prepare new chlorine solution daily; 4) providers from MNH service delivery room follow IP practices when disposing instruments, linen and waste at point of use/generation; 5) instruments processed following IP practices; 6) IP practices followed for handling waste; 7) health facility manager ensures implementation of good practices for waste disposal; 8) sterilization performed with autoclaves; and 9) high-level disinfection process (boiling) used. One to two normal labor cases or simulations were observed and facilities were monitored three times for IP standards.

Graph 2: Summary Results of QI Assessments in Normal Labor by Performance against Verification Criteria



Graph 3: Summary Results of QI Assessments in IP by Performance against Verification Criteria



Improved compliance with evidence-based standards led to improved quality of care for clients: Through MCSP's support, health care worker practices related to newborn and child health care improved. Key informants from the external evaluation reported improved application of delayed cord clamping, improved use of the skin-to-skin care of the newborn after birth, and better prevention of birth asphyxia [27]. They stated that MCSP contributed to changes in key maternal health-related practices, including the management of pregnancy-induced hypertension (pre-eclampsia/eclampsia), use of partographs, active management of the third stage of labor, and birth positioning [27]. Key informants also suggested that the occurrence of vaginal tears, postpartum hemorrhage, and neonatal asphyxia decreased over the past couple of years because of better compliance to guidelines due to MCSP's support, although there is no clinical data to further support this claim [19]. MCSP also contributed to improved communication skills among health providers according to several key informant interviews. Through MCSP's training activities, health worker attitudes improved, resulting in better trust between patients and their families and themselves [28].

There is additional evidence in the literature to support the claim that QI interventions can also influence service delivery. Necochea et al. presented results from the implementation of a QI approach, standards-based management and recognition (SBM-R®), in 24 countries and found that SBM-R assessments and routine program data (e.g., health service statistics) consistently show marked improvements over relatively short time periods of 6 months to 1 year [30]. Horwood et al. used a continuous quality improvement mentoring model to improve supervision of CHWs in a randomized controlled trial where mentoring was delivered to the intervention group bimonthly over 12 months [31]. Researchers found that CHWs who received the intervention provided better health information than controls, based on surveys of mothers who had been visited by CHWs. Outcome measures from other studies have shown more accurate documentation of care, increased accordance with care plans, and actual care delivered [31, 32, 33, 34]. One cluster randomized controlled trial showed that a combination of QI in health facilities coupled with community mobilization resulted in a reduction in newborn mortality in three districts in rural Malawi [32].

Regarding improved work environment for providers, MCSP implemented an effective and standardized approach to in-service capacity building that is endorsed by the MOHS, and both state and non-state (e.g., EHO) actors had access to the standardized training approach and curriculum [35]. There was high-level commitment to MCSP methods, and MCSP-supported policies, guidelines, and standards of practice may be used in future nationwide training. Integration of MCSP models into NHP operation plans, such as cascade training models, QI, and post-training follow-up, and MOHS interest in expanding L&PIC sites in other states/regions, suggested how MCSP influenced in-service capacity building at the system level.

Capacity development in maternal care was evident via changes in practice on management of postpartum hemorrhage, hypertension in pregnancy, effective use of partograms, neonatal care via newborn care and cord

care, and KMC for small babies, as well as child health care via early diagnosis and referral for high-risk child illnesses. L&PIC models were being used effectively at all sites visited, and the desk review suggested that all sites were functioning well. However, maintenance challenges for longer-term functioning exist. Professional bodies had an opportunity to strengthen organizational capacity and standardized skills assessment [36]. Continuing medical education practices and relicensing favored continuous learning practice and career development capacity building initiatives. Improved staff capacity is evident via post-training follow-up assessments and QI initiatives. MCSP successfully engaged with EHOs and increased trust and coordination between MOHS and EHOs. There was a spillover benefit in the area of husband involvement in delivery and child-rearing practice, particularly in KMC. Some MCSP approaches favored and promoted shared childcare responsibility between mothers and fathers/wives and husbands [37].

Box 4: Introduction and implementation of kangaroo mother care (KMC)

As part of IR 3, MCSP also introduced and implemented KMC in the third year of the program to improve health outcomes of small and preterm babies. KMC is an approach that impacts health of both mother and infant; health effects include increased breastfeeding, mother-baby bonding, weight gain, decreased morbidity and mortality [29]. Between September 2017 and March 2018, 66% of eligible newborns were admitted to KMC services (198/301) [19]. The remaining 34% of KMC-eligible babies (103/301) did not receive KMC, usually due to the early discharge of their mother because of limited hospital beds. To build on this KMC demonstration, MCSP conducted a study to document the effects of KMC in the Burma context, the results of which are intended to provide an evidence base and strong platform for advocacy of national adoption of KMC [27]. The KMC approach was found to be acceptable among mothers, family members and health staff, and the MOHS has plans to scale up the KMC standards of practice [19].

Unanticipated Results and External Influences

Several positive unanticipated results from the overall program are worth mentioning. MOHS clinical trainers applied their clinical teaching skills that had been developed with MCSP support to other training not supported by MCSP, suggesting that the methodology was acceptable and appropriate for broad application. The establishment of the L&PIC model was included as a strategy in the Burma NHP Annual Operational Plan, suggesting commitment of the MOHS to sustain and scale up the approach (Box 1). The L&PIC model aims to build state/regional and district health training teams by providing standardized resources (e.g., modularized, competency-based training packages and standardized, post-training follow-up tools). The central MOHS also made a commitment to establish a QI system and agreed to review MCSP's approach and standards for QI at five clinical sites affiliated with the state/regional L&PICs. The inclusion of these specific MCSP approaches in QI national planning suggests that key government stakeholders placed value on these activities.

There were several external influences which may have affected the outcomes of the project—neutral, positive, and negative:

- **Neutral influences** included structural reform of the MOHS and the competing priorities of different departments of the MOHS that may have affected the progress of the implementation of project activities [38]. The level of coordination and degree of information sharing between different departments of the MOHS has a considerable impact on the implementation of certain activities [38]. According to Grundy et al. (2014), "political reforms have accelerated rates of development assistance as well as contributing to exploration of social sector policy options including increased health sector budgets, decentralized health planning, alternative health financing models, and public–private partnerships, all of which are opening up a new health policy landscape in Burma [39]."
- **Positive external influences** included availability, interest, and commitment of MOHS counterparts [40]. Without their investment, the program would not have been feasible. MCSP was able to overcome distrust that can sometimes be an obstruction to development efforts [28]. MCSP was also able to successfully engage with EHOs, resulting in increased trust and coordination between the MOHS and EHOs [41].

- Several key **negative external influences** related to health systems management and sociocultural and political factors may have affected program implementation and results [40]. First, there was a high level of turnover/attrition/relocation of facility staff, which is common in low-resource settings. High nurse turnover, for example, can negatively influence the ability to meet patient needs and provide quality care. It also affects the productivity and morale of those who remain in their positions and has economic costs [42]. While there is currently no direct evidence to show that turnover is related directly to quality of care, patient satisfaction has been shown to decrease and downstream effects include adverse outcomes for patients, lack of continuity of care, additional time required to manage employees, and loss in staff productivity [43]. There is also evidence to suggest that lack of trained health care providers severely impacts health care delivery [44, 45]. However, human resource issues including staff shortages, attrition, and turnover were beyond MCSP's scope or work to address. Tensions between military and ethnic groups were also reported. The unstable situation in Rakhine State affected MCSP activities in Sittwe to a certain extent [41, 46]. Additional negative influences identified by program staff included natural disasters, changing custom clearance policy, stock-outs of necessary supplies and drugs and the fact that health workers' time was also taken up by other training sessions offered by other organizations [37].

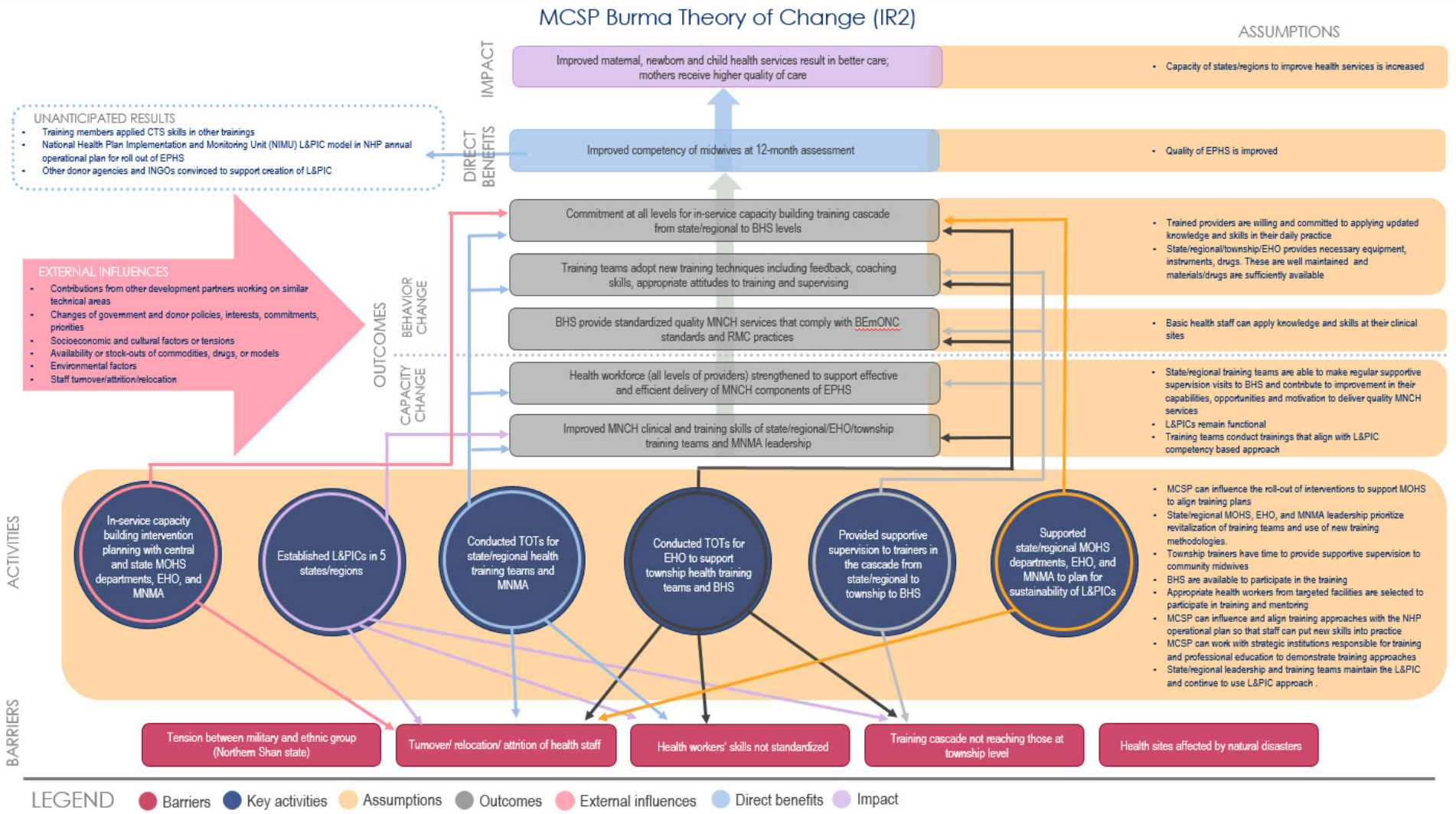
IV. Limitations

There were several key influencing factors affecting the process and subsequently the creation of the CA story. First, there were limited data available related to the application of the improved clinical skills by trained service providers at the point of care as well as related to health outcomes. Data assessing provider skills pre- and post-training were available but this did not provide evidence regarding how these skills translated into on-the-job provider performance in the longer term, which would require a special study that includes direct observation of care that was beyond the scope of MCSP's mandate and resources. As a result, there was some reliance on the literature to provide supporting evidence for the of the program's contributions claims, especially related to longer-term impact. In the future, the contribution story can be strengthened by ensuring that additional program data are available to describe impact based on the TOCs.

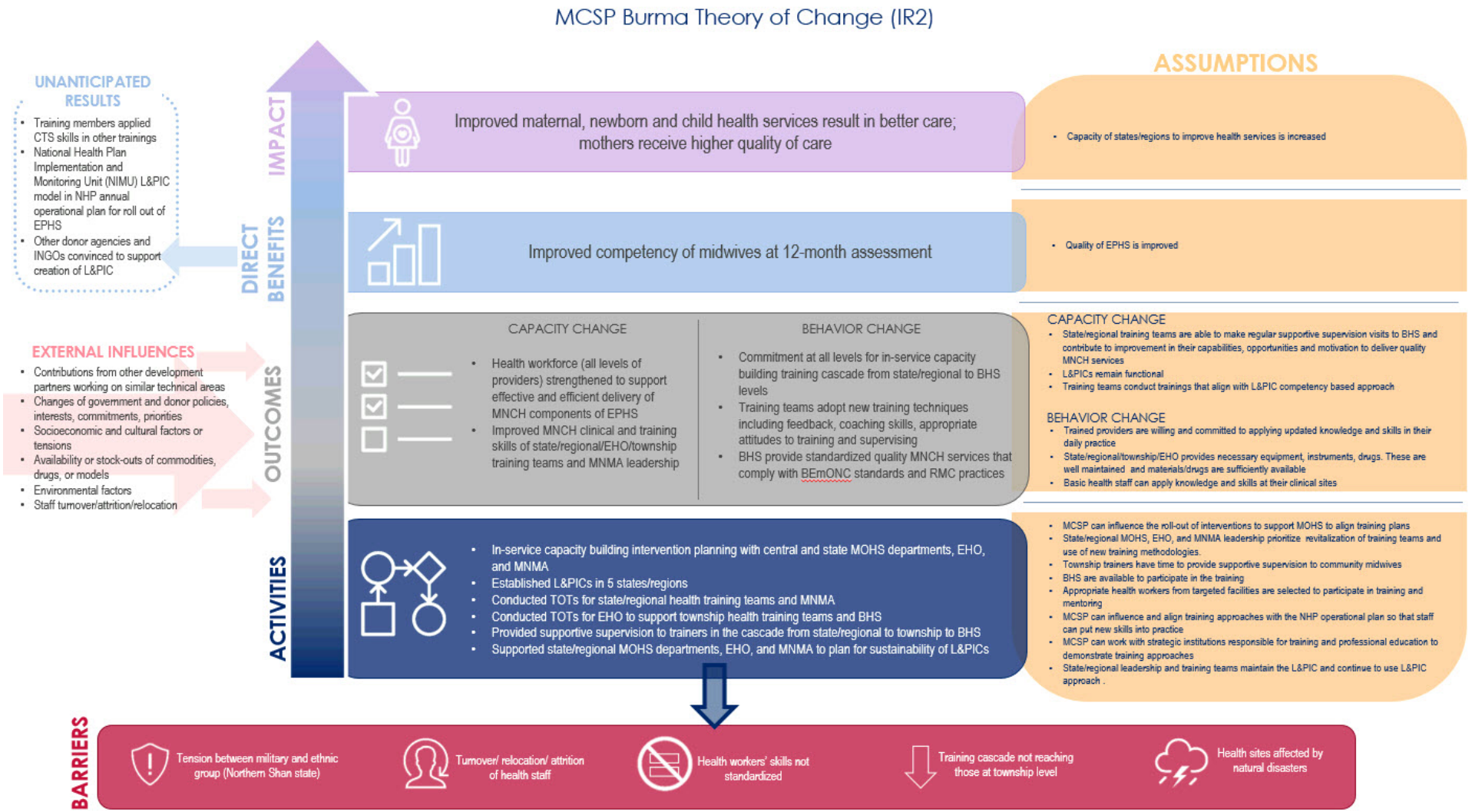
V. Conclusions

The MOHS recognizes the need to focus on health system strengthening to improve health outcomes. Health systems strengthening has also been identified as a priority cross-cutting area along with the other USAID Bureau for Global Health technical priority areas that include saving mothers and improving child survival [6]. MCSP's approach in Burma was aligned to address health system realities and the drivers of MNCH morbidity and mortality through health workforce strengthening, with the ultimate goal of improving MNCH outcomes. The results of this analysis indicate that in partnership with the MOHS, MCSP was able to implement approaches that resulted in a stronger health workforce that has the skills to provide high-quality MNCH care.

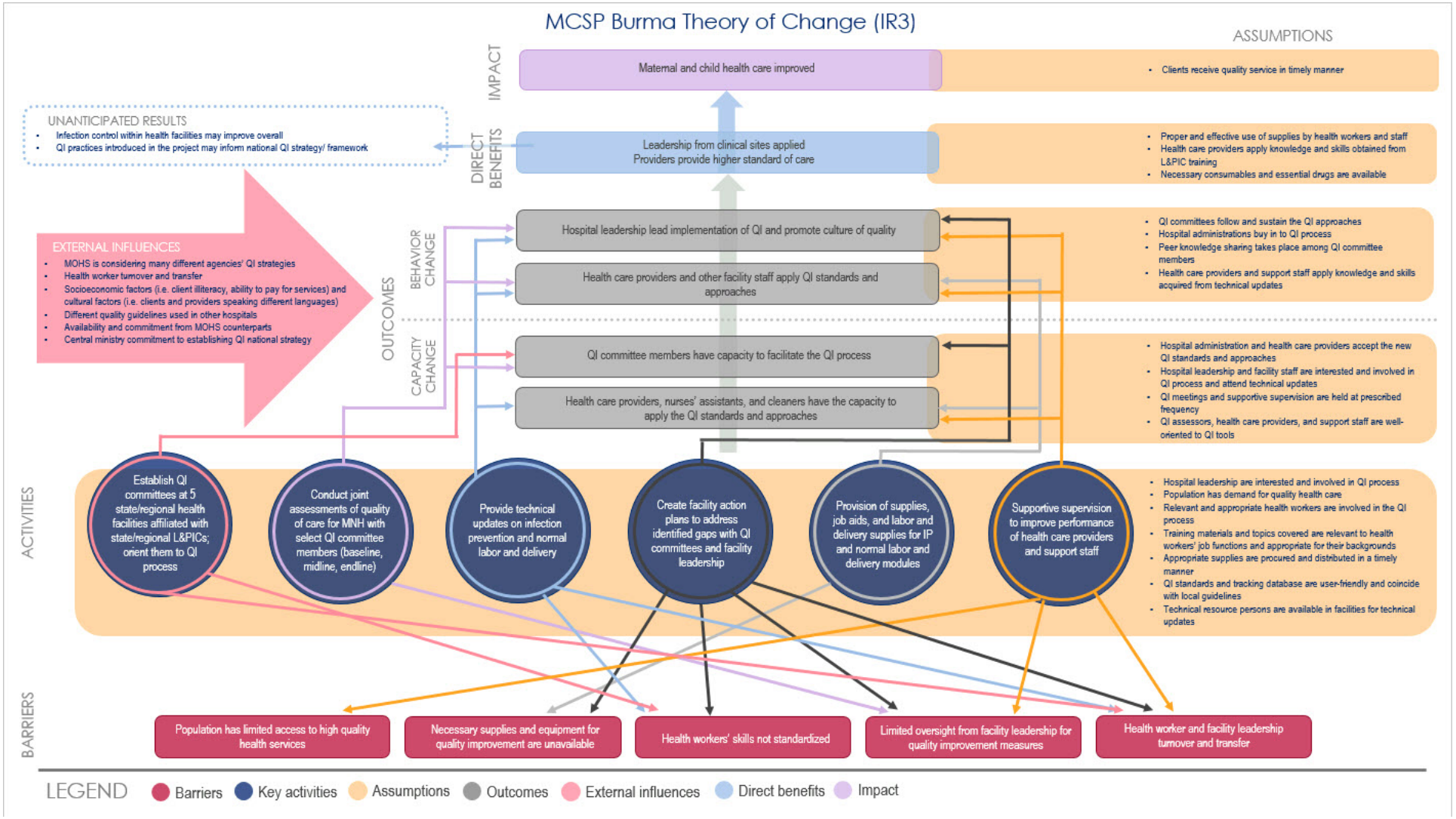
Annex 1: IR 2 Theory of Change (Complex)



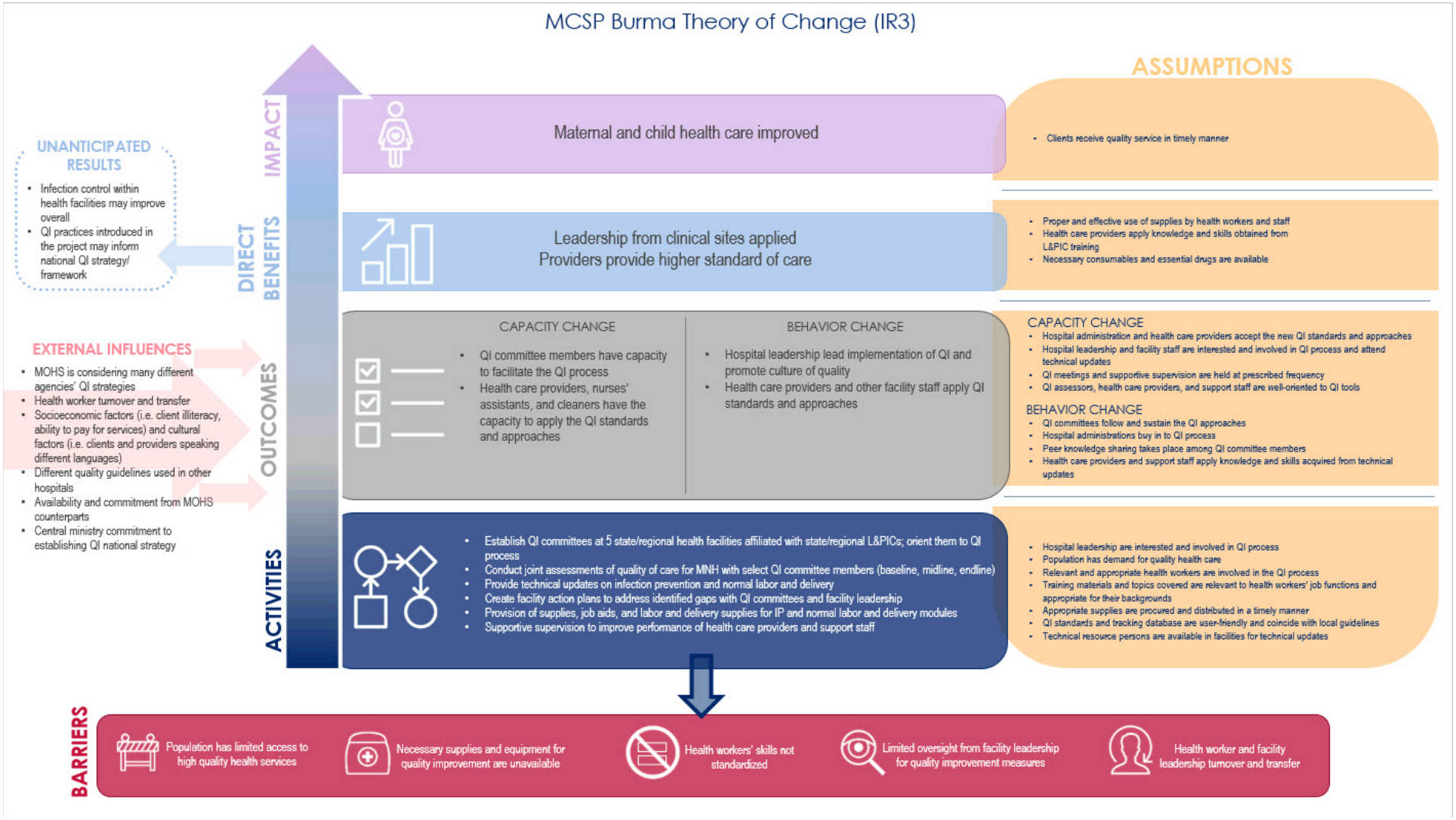
Annex 2: IR2 Theory of Change (Simple)



Annex 3: IR 3 Theory of Change (Complex)



Annex 4: IR 3 Theory of Change (Simple)



Annex 5: Assumptions Table

Assumption	IR 2	IR 3	Assumptions impacting both IRs
Reach, Policy, Resource	• MCSP can influence the roll-out of interventions it supports to help departments within the MOHS align training plans • State/regional health directors and EHO/MNMA leadership prioritize revitalization of training teams and use of new training methodologies • Township trainers have time to provide supportive supervision to community midwives • Basic health staff are available to participate in the training • Appropriate health workers from targeted facilities are selected to participate in training and mentoring • Senior health officials/policy-makers are available and interested to be oriented to effective and efficient training roll-out model • MCSP can work with the MOHS to influence and align with the NHP operational plan so that staff can put new skills and capacities into practice • MCSP is able to work with strategic institutions responsible for training and professional education for this demonstration approach • State/regional leadership and training teams maintain the L&PICs and continue to use L&PIC approach	• Hospital leadership is interested and involved in QI process • Population seeks health care • Population is able to receive/reach timely care • Relevant and appropriate health workers are involved in the QI process • Training materials and topics that are delivered are relevant to health care providers' job functions and background • Appropriate supplies are procured and distributed in a timely manner • QI standards and tracking database are contextual with local guidelines and user-friendly • Technical resource persons (in facilities) are available for technical update	• Staff is available to be trained • Appropriate staff is selected for training/interventions • Higher level personnel is committed to implementing interventions • Population seeks care • MCSP has capacity to roll out interventions
Capacity Change	• State/regional training team are able to make regular supportive supervision visits to basic health staff and contribute to improvement in their capabilities, opportunities, and motivation to deliver quality MNCH services • L&PICs remain functional • Training teams conduct training that aligns with the L&PIC competency-based approach	• Hospital administration and health care providers accept the new standards and QI approached • Both hospital leader and facility staff are interested in QI process • QI meetings and supportive supervision are held at prescribed frequency • QI assessors and health care providers and support staff are well oriented on the QI tools • Health care providers and support staff attended these training activities	• Responsible personnel are committed, able, and have time to carry out associated responsibilities • L&PICs are functional

Assumption	IR 2	IR 3	Assumptions impacting both IRs
Behavior Change	• Health care providers are willing and committed to applying updated knowledge and skills in their daily practice • State/regional/township/EHO provides necessary equipment, instruments, and drugs, and these are well maintained and sufficiently available • Basic health staff can apply knowledge and skills at their clinical site	• QI committees follow and sustain the QI approach • Hospital administration buys into QI process • Health care providers apply updated knowledge and skills from technical update sessions • Peer knowledge sharing occurs through QI committee members • Health care providers and support staff apply knowledge and skills acquired from technical update sessions	• Health care providers are willing and able to provide quality services • Health care providers are committed to QI processes
Direct Benefits	The quality of EPHS is improved	• Health workers and staff properly and effectively use supplies • Health care providers apply knowledge and skills obtained while being trained at L&PICs • Needed consumable items and essential drugs are available	Essential supplies are available
Wellbeing Change	Capacity of state/regions to improve health services is increased	Clients receive quality services in timely manner	The population is healthier

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