

**FANTA·2**

FOOD AND NUTRITION  
TECHNICAL ASSISTANCE



**USAID**  
FROM THE AMERICAN PEOPLE

**Integrating Nutrition Services into  
the MaMoni Project in Habiganj,  
Bangladesh: Assessment and  
Strategy**

Draft, February 2012

This document is made possible by the generous support of the American people through the support of the Office of Health, Infectious Diseases, and Nutrition, Bureau for Global Health, United States Agency for International Development (USAID) and USAID/Bangladesh under terms of Cooperative Agreement No. AID-OAA-A-11-00014, through the FANTA-2 Bridge, managed by FHI 360.

The contents are the responsibility of FHI 360 and do not necessarily reflect the views of USAID or the United States Government.

Draft, February 2012

**Recommended Citation:**

*Unpublished draft*

**Contact information:**

Food and Nutrition Technical Assistance  
II Project (FANTA-2)  
FHI 360  
1825 Connecticut Avenue, NW  
Washington, D.C. 20009-5721  
Tel: 202-884-8000  
Fax: 202-884-8432  
Email: [fantamail@fhi360.org](mailto:fantamail@fhi360.org)  
Website: [www.fantaproject.org](http://www.fantaproject.org)

# Contents

---

<b>Acknowledgments</b> .....	<b>i</b>
<b>Abbreviations and Acronyms</b> .....	<b>ii</b>
<b>Executive Summary</b> .....	<b>iv</b>
<b>What is MaMoni?</b> .....	<b>1</b>
<b>Assessment of Nutrition Services in MaMoni</b> .....	<b>2</b>
Background.....	2
Operational Context.....	3
Objectives of the Assessment .....	4
Geographic Area of the Assessment.....	5
Sampling Method.....	5
Data Collection Methods .....	6
Data Processing and Analysis .....	7
<b>Results of the Assessment</b> .....	<b>8</b>
Context .....	8
Nutrition Services being Provided .....	9
Gaps in Service Provision .....	10
Challenges.....	11
Opportunities for Integration of Health Services.....	13
<b>Recommended Strategy for Integrating Nutrition into MaMoni</b> .....	<b>16</b>
<b>1. Target Groups</b> .....	<b>21</b>
1.1. Nutrition Services: Pregnant and Lactating Women and Children under 2 Years of Age.....	21
1.2. Social and Behavior Change Communication: Women/Mothers, Mothers-in-Law/Grandmothers, Men/Husbands/Fathers, Caregivers, Adolescents, Community Leaders, and the Media .....	21
<b>2. What Should be Integrated</b> .....	<b>22</b>
2.1. ENA and Hygiene at the Health Service Level.....	22
2.1.1. Optimal Nutritional Care of Sick and Severely Malnourished Children .....	22
2.1.2. Prevention of Vitamin A Deficiency.....	22
2.1.3. Promotion of Adequate Iron Intake and Prevention and Control of Anemia.....	23
2.1.4. Promotion of Adequate Iodine Intake .....	23
2.1.5. Optimal Nutrition for Women and Adolescent Girls .....	23
2.1.6. Hygiene Practices .....	23
2.2. Promotion of ENA and Hygiene at the Community Level .....	23
2.2.1. Optimal Breastfeeding during the First 6 Months of Life.....	24
2.2.2. Optimal Complementary Feeding Starting at 6 Months with Continued Breastfeeding to 24 Months and Beyond .....	24
<b>3. How to Integrate Nutrition into the Mamoni Project</b> .....	<b>25</b>
3.1. Promote Social and Behavior Change .....	25
3.1.1. Engage and Mobilize the Community .....	25
3.1.2. Conduct Behavior Change Activities.....	27
3.2. Strengthen Nutrition Service Delivery at the Facility and Community Levels .....	30
3.2.1. Community-Level Provision of Nutrition Services.....	30
3.2.2. Recruit Staff .....	31
3.2.3. Improve the Quality of Services.....	31
3.2.4. Incorporating Additional Nutrition Indicators in the Management Information System.....	35
3.2.5. Strengthen Multisectoral Linkages.....	35
3.3. Phased Implementation, with Pilot Testing Before Scale-Up.....	35
3.3.1. Team.....	35
3.3.2. Schedule .....	36

3.3.3. Financial Resources .....	36
<b>Annex 1. Simplified Organogram of MOHFW Service Providers .....</b>	<b>40</b>
<b>Annex 2. Training Schedule for Data Collectors.....</b>	<b>41</b>
<b>Annex 3. Field Work Schedule and Level of Field Staff Interviewed .....</b>	<b>43</b>
<b>Annex 4. Essential Nutrition Actions .....</b>	<b>44</b>
<b>Annex 5. Key Hygiene Practices for Nutrition.....</b>	<b>46</b>
<b>Annex 6. Suggested Nutrition Actions to Include in Existing Service Protocols for Health Workers .....</b>	<b>47</b>
<b>Annex 7. Summary Table for Integrating ENA into MaMoni .....</b>	<b>53</b>
<b>References .....</b>	<b>56</b>
<b>Endnotes .....</b>	<b>57</b>

## LIST OF FIGURES

Figure 1. Conceptual Framework of Causes of Undernutrition.....	2
Figure 2. Map of Habiganj District, Bangladesh .....	5
Figure 3. Ways to Integrate the ENA at Different Life Stages .....	17
Figure 4. Key Recommendations for Integrating Nutrition into MaMoni Services .....	19
Figure 5. Socio-Ecological Model .....	20

## LIST OF TABLES

Table 1. Healthcare Providers in the Public Sector Health Service Delivery System of Bangladesh .....	1
Table 2. Nutrition Indicators in Habiganj and Bangladesh.....	3
Table 3. Examples of Desired Changes for Specific Target Groups (Illustrative) .....	27
Table 4. Health Service Provider Skills.....	32
Table 5. Example of Operational/Implementation Plan and Timeline.....	36
Table 6. Summary of Investments Needed to Implement the Recommendations in this Strategy .....	37

## Acknowledgments

---

The authors of this assessment and strategy are grateful to the many collaborators who contributed their time, technical expertise, and practical knowledge to the development of this report. The main authors of this document are Kristen Cashin (FHI30/Food and Nutrition Technical Assistance Project [FANTA-2]), Sheela Sinharoy (Helen Keller International [HKI]/Bangladesh), and Astrid von Kotze (consultant). However, staff from the MaMoni Project, HKI/Bangladesh, FHI360/FANTA-2, the United States Agency for International Development (USAID)/Bangladesh, and the Government of Bangladesh (GOB) were also critical to the process.

Nasiruzzaman, Thibaut Williams, Shannon Young, and Kadijat Majidi of the OPHNE team at USAID/Bangladesh identified the need for the assessment and supported FANTA-2 in carrying it out. We thank the Ministry of Health and Family Welfare (MOHFW) of Habiganj district for sanctioning this exercise, extending its full cooperation, and opening the doors of its facilities to the team. MOHFW staff shared data and documents, participated in interviews, and patiently responded to many questions. We must also thank members of the assessment team who oversaw the exercise; identified key issues to be reviewed and checked; developed, tested, and reviewed the tools; and collected the data.

Additional collaborators were deeply involved and dedicated to the process, providing the logistical, technical, and editorial support necessary to making the assessment and this report possible. Key contributors included:

- Dr. Md Alamgir, Dr. Jhatan Bhowmick, Mosharraf Hossain, Rowshan Jahan, Dr. Ishtiaq Mannan, Imteaz Mannan, and Dr. Sabbir from MaMoni/Save the Children
- Abdullah Al-Mamun, Masuma Chowdhury, Nahida Hossain, Astrid von Kotze, Diane Lindsey, Sanjoy Saha, and Nigar Sultana, from HKI/Bangladesh
- Dr. Ferdousi Begum, Rachel Elrom, Jeff Feldmesser, Heather Finegan, Kavita Sethuraman, Jill Vitick, and Monica Woldt from FHI360/FANTA-2

Lastly, but not least, we would like to thank the people in Habiganj who were generous with their knowledge, insight, and time as they participated in the assessment, including front-line health workers, supervisors, program staff, and community members. Their honest insights gave us a clearer understanding of opportunities and constraints for integrating nutrition services into health services with MaMoni.

We sincerely hope that this assessment report and strategy will lead to improved nutrition services that better meet the needs of clients, as well as improved support to the providers so that they might better serve the needs of the community as a whole.

## Abbreviations and Acronyms

---

A&T	Alive & Thrive project (FHI360)
AD-CC	assistant director- clinical contraception
AHI	assistant health inspector
ANC	antenatal care
BBS	Bangladesh Bureau of Statistics
BMI	body mass index
BRAC	Bangladesh Rural Advancement Committee
CAG	Community Action Group
CHG	community health group
CHW	community health worker
CMAM	Community-Based Management of Acute Malnutrition
DG-FP	Directorate of Family Planning
DG-HS	Directorate of Health Services
DHS	Demographic and Health Survey
EBF	exclusive breastfeeding
ENA	Essential Nutrition Actions
EPI	expanded program of immunization
FANTA-2	Food and Nutrition Technical Assistance II Project (FHI360)
FANTA III	Food and Nutrition Technical Assistance III Project (FHI360)
FIVDB	Friends in Village Development Bangladesh
FPI	family planning inspector
FSNSP	Food Security and Nutrition Surveillance Project
FWA	family welfare assistant
FWV	family welfare volunteer
g	gram(s)
GAM	global acute malnutrition
GOB	Government of Bangladesh
HA	health assistant
HAZ	height-for-age z-score
HI	health inspector
HKI	Helen Keller International
HMIS	health management information system
HPNSP	Health, Population and Nutrition Sector Program
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
IEC	information, education, and communication
IFA	iron and folic acid
IMCI	Integrated Management of Childhood Illness
IPHN	Institute of Public Health Nutrition (Government of Bangladesh)
IYCF	infant and young child feeding
kcal	kilocalorie(s)
KMC	kangaroo mother care
LBW	low birth weight
m <sup>2</sup>	meters squared
M&E	monitoring and evaluation
MA	medical assistant
MAM	moderate acute malnutrition
MCHN	maternal and child health and nutrition
MCWC	mother child welfare center
MDG	Millennium Development Goal
MNH-FP	Maternal and Neonatal Health-Family Planning
MO	medical officer
MOHFW	Ministry of Health and Family Welfare
MUAC	mid-upper arm circumference

NGO	nongovernmental organization
NID	national immunization day
NNP	National Nutrition Program
NNS	National Nutrition Services
ORS	oral rehydration solution
PLW	pregnant and lactating women
PNC	postnatal care
QI	quality improvement
RMO	resident medical officer
RUTF	ready-to-use therapeutic food
SACMO	sub-clinical medical officer
SBCC	social and behavior change communication
SAM	severe acute malnutrition
SFWV	senior family welfare visitor
SUN	Scaling Up Nutrition
TBA	traditional birth attendant
UFPO	<i>upazila</i> family planning officer
UHC	Upazila Health Complex
UHFPO	<i>upazila</i> health and family planning officer
USAID	United State Agency for International Development
WAZ	weight-for-age z-score
WHO	World Health Organization
WHZ	weight-for-height z-score
<	less than
%	percent

## Executive Summary

---

Nutrition has received increased attention globally in recent years as evidence has accumulated that nutritional status plays a significant role in many aspects of health and development. The 2010 Bangladesh Food Security and Nutrition Surveillance Project (FSNSP) indicated an elevated level of stunting (44.7 percent) and wasting (7.6 percent) among children under 5 years of age and low body mass index (BMI) among women (26.0 percent),<sup>1</sup> indicating that malnutrition remains a serious problem in Bangladesh. The Government of Bangladesh (GOB) has signed on to the Scaling Up Nutrition (SUN) movement and has begun planning to mainstream nutrition through National Nutrition Services (NNS).

The United States Agency for International Development (USAID)-funded MaMoni Project works in all eight *upazilas* (sub-districts) of Habiganj District in Bangladesh to improve maternal and neonatal health outcomes by increasing the practice of healthy behaviors and the use of high-impact health services during the antenatal, childbirth, and postnatal periods. MaMoni's work in Habiganj presents an opportunity to integrate nutrition into health services.

The FHI360 Food and Nutrition Technical Assistance II Project (FANTA-2) and Helen Keller International (HKI)/Bangladesh conducted a qualitative study in 2011 to identify how an Essential Nutrition Actions (ENA) package could be integrated in USAID-funded health service delivery projects such as the MaMoni project. Specifically this included describing the current situation, identifying gaps and opportunities, and developing concrete recommendations. Based on this assessment, the team developed a strategy that provides recommendations for integrating nutrition into MaMoni's services.

The key recommendations include the following three sections.

1. Whom to target:

- For nutrition services, target a population that goes beyond just pregnant women and neonates to include all pregnant and lactating women (PLW), children under 2 years of age, and adolescents.
- For social and behavior change communication (SBCC), target the entire community to reach women/mothers, men/fathers, mothers-in-law/grandmothers, caregivers, community leaders (elected and religious), and adolescent girls and boys.

2. What to integrate:

The ENA should be integrated at the health service and community levels.

- Health service-level provision:
  - Optimal care of sick and malnourished children
  - Prevention of micronutrient deficiencies: vitamin A, iron, iodine, and zinc
  - Maternal nutrition
  - Key hygiene practices

Note: The ENA on optimal breastfeeding and complementary feeding are included in the Gates Foundation-funded FHI 360 Alive & Thrive project (A&T)'s work with MaMoni.

- Community-level promotion:
  - All seven ENA
  - Key hygiene practices

3. How to integrate nutrition:

- Promote social and behavior change.
- Strengthen nutrition service delivery.
  - Provide nutrition services at the community level.
  - Recruit staff.
  - Improve the quality of services.
  - Incorporate nutrition indicators into the health information system, in collaboration with the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), MEASURE Evaluation, and the GOB.
  - Strengthen multisectoral linkages.
- Implementation should occur in phases, with initial testing before scale-up.



## What is MaMoni?

MaMoni is an integrated safe motherhood, newborn care, and family planning project that operates in the Sylhet and Habiganj districts of the Sylhet Division in Bangladesh. MaMoni works to improve maternal and neonatal health outcomes by increasing the practice of healthy maternal and neonatal behaviors and the use of high-impact health services during the antenatal, childbirth, and postnatal periods. This currently includes a small number of nutrition services within the context of maternal and newborn care. MaMoni is also collaborating with the Gates Foundation-funded FHI360 Alive & Thrive project (A&T), to incorporate infant and young child feeding (IYCF) activities for children up to 2 years of age into the project.

MaMoni primarily works through the Government of Bangladesh's (GOB) public health sector delivery system, while also emphasizing community mobilization and behavior change communication. Specifically, MaMoni is working with the Ministry of Health and Family Welfare (MOHFW) to strengthen the capacity of district management, community, and facility service providers and referral systems. This includes improving technical knowledge of public health facility staff and increasing the availability of quality services at the *upazila*, union, and community level. By working within existing health systems, the project aims to demonstrate comprehensive approaches that can be scaled up in other districts.

The MOHFW operates the health care delivery system from the division to the village level. **Table 1** shows the main cadres of providers within this system, their minimum academic background, and the services they are responsible for providing. Frontline workers, namely the health assistants (HAs) and family welfare assistants (FWAs), work at the community level, where they staff community clinics and satellite clinics. FWAs also work at the household level, going house to house in their designated communities to register pregnant women and provide basic family planning services. Additional information on the organizational structure of the MOHFW health service delivery system is in **Annex 1**.

**Table 1. Healthcare Providers in the Public Sector Health Service Delivery System of Bangladesh**

Provider	Educational background	Services provided
Health assistant (HA)	10 years of schooling	Immunization, limited preventive and curative care
Family welfare assistant (FWA)	10 years of schooling	Antenatal care (ANC), postnatal care (PNC), family planning
Family welfare visitor (FWV)	10 years of schooling	ANC, PNC, family planning
Paramedic	10 years of schooling, 1–3 years paramedic or nursing training	ANC, PNC, family planning, limited preventive and curative care
Sub-clinical medical officer (SACMO)	10 years of schooling, 3 years medical assistant training	ANC, PNC, family planning, preventive and curative care
Medical officer (MO)	12 years of schooling, 5 years of medical training, 1 year internship	ANC, PNC, family planning, delivery, preventive and curative care

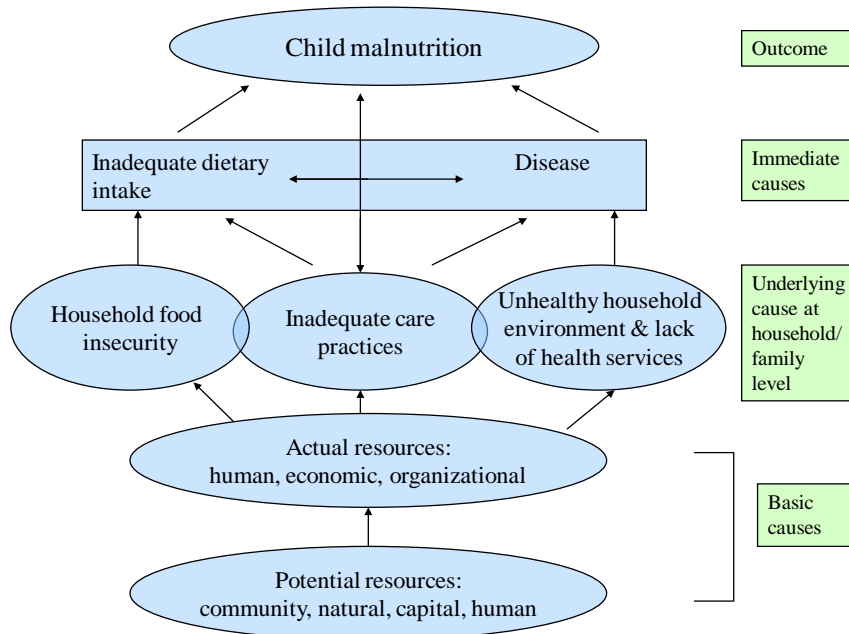
## Assessment of Nutrition Services in MaMoni

### BACKGROUND

Nutrition has received increased attention globally in recent years as evidence has accumulated that nutritional status plays a significant role in many aspects of health and development. Undernutrition is a direct or underlying cause in approximately 35 percent of deaths among children under 5 and 11 percent of the total global disease burden.<sup>ii</sup> Long-term consequences of child undernutrition include reduced cognitive ability and economic productivity as well as compromised physical and social development, with potential population-level impact in societies where the prevalence of undernutrition is high. Maternal undernutrition also has an intergenerational effect, as it can lead to intrauterine growth restriction as well as potential long-term consequences for the fetus, such as increased risk of heart disease and diabetes later in life.<sup>iii</sup> Maternal undernutrition, as measured through maternal short stature and iron deficiency anemia, also accounts for at least 20 percent of maternal mortality.<sup>i</sup>

The general causes of child nutrition can be conceptualized according to a framework developed by UNICEF (**Figure 1**)<sup>iv</sup>. The causes range from the availability of basic resources to specific care practices and individual dietary intake. Health services play an important role because high-quality health services can prevent and treat diseases and influence care practices. However, Save the Children's Health Workers Reach Index recently ranked Bangladesh as the nineteenth worst country for a child to fall sick in (out of 161 countries with reliable health data). The report states that Bangladesh falls —below the [World Health Organization (WHO)] minimum threshold of just over two health workers for every thousand people” and that children in Bangladesh are —five times more likely to die than those further up the index.”<sup>v</sup> The quality of health services in Bangladesh therefore represents an important challenge to the prevention and reduction of undernutrition.

**Figure 1. Conceptual Framework of Causes of Undernutrition**



Source: Mridha MK et al., 2009<sup>vi</sup>

The most recent national estimates for nutrition in Bangladesh come from the Food Security and Nutrition Surveillance Project (FSNSP), which is jointly administered by Helen Keller International (HKI), Bangladesh Rural Advancement Committee (BRAC), and the Bangladesh Bureau of Statistics (BBS), with funding from the European Union. According to FSNSP data from 2010, among children under 5 the prevalence of stunting (height-for-age z-score [HAZ] < -2) was 44.7 percent and the prevalence of wasting, or global acute malnutrition (GAM) (weight-for-height z-score [WHZ] < -2), was 7.6 percent. Prevalence of chronic energy deficiency, a measure of malnutrition in women (body mass index [BMI] < 18.5 g/m<sup>2</sup>), was 26.0 percent.<sup>vii</sup> These figures indicate that malnutrition, particularly chronic malnutrition, remains a serious problem in Bangladesh. Further, though Bangladesh has already met Millennium Development Goal (MDG) 5 to reduce the maternal mortality ratio by three-quarters and is on track to meet MDG 4 to reduce the under-5 mortality rate by two-thirds, the country is not on track to achieve MDG 1 to halve the proportion of children under 5 who are underweight by 2015. Additional attention and action is needed for nutrition to achieve MDG 1.

In Habiganj district, where the assessment was conducted, the nutrition situation is similar. **Table 2** shows key nutrition indicators for Habiganj district as well as Bangladesh as a whole. The figures show that malnutrition is a serious problem in Habiganj and that nutrition behaviors, such as early initiation of breastfeeding, exclusive breastfeeding (EBF) to 6 months of age, and appropriate complementary feeding, all have a great deal of room for improvement. Improving these behaviors will lead to improved health outcomes. MaMoni's current work in Habiganj presents an exciting opportunity to integrate nutrition into health services to improve these indicators.

**Table 2. Nutrition Indicators in Habiganj and Bangladesh**

Indicator	Habiganj	Bangladesh
<b>Proportion of malnourished children 0–59 months by HAZ, weight-for-age z-score (WAZ), and WHZ</b>		
Moderate and severe stunting (HAZ < -2)	42.4%	44.7%
Moderate and severe underweight (WAZ < -2)	37.6%	30.6%
GAM (WHZ < -2)	11.3%	7.6%
<b>Early breastfeeding behavior for infants under 6 months of age</b>		
Early initiation of breastfeeding	55.5%	39.6%
EBF under 6 months	53.8%	52.4%
Predominant breastfeeding under 6 months	59.8%	62.8%
Prelacteal feeding	42.9%	52.9%
<b>Continuing breastfeeding behavior for older children under 24 months of age</b>		
Continued breastfeeding at 2 years	91.6%	91.7%
<b>Complementary feeding for older children 6–23 months of age</b>		
Introduction of solid, semi-solid, or soft foods (6–8 months)	86.0%	89.0%
Minimum dietary diversity (6–23 months)	33.4%	38.0%
Consumption of iron-rich or iron-fortified foods (6–23 months)	43.2%	41.5%

Source: FSNSP 2010

## OPERATIONAL CONTEXT

Historically, nutrition has not been integrated in the GOB health service delivery system. Until 2011, nutrition was largely programmed through an independent National Nutrition Program (NNP), which operated in approximately one-third of the country. However, the NNP produced mixed results and will be replaced by a plan to mainstream nutrition into the health service delivery system. To this end, the new Health, Population and Nutrition Sector Program (HPNSP), which has been approved for 2011–2016,

now includes National Nutrition Services (NNS). However, the functional operation, specific nutrition services to be provided, and delivery channels of the NNS remain unclear. Due to this history of uneven and poorly coordinated services, there are few models of integrated health and nutrition services in Bangladesh. The scale-up of Essential Nutrition Actions (ENA), a framework composed of seven evidence-based nutrition actions to promote maternal and child nutrition, into United States Agency for International Development (USAID)-funded maternal and child health programs could serve as a useful country-specific example of how nutrition can be integrated into health service delivery platforms.

Further impetus for integration and scale-up comes from the Scaling Up Nutrition (SUN) movement. The SUN movement is a global effort to generate support for countries to address undernutrition through a range of sectors and interventions. The GOB has expressed its intention to scale up nutrition as an “early riser” of the SUN movement. The SUN Road Map, which is designed for governments and their development partners, promotes a multisectoral, coordinated response on the part of governments and better alignment of assistance on the part of development partners. It particularly emphasizes the need for a long term commitment by national governments as well as for functioning health care systems at all levels for sustainable improvement in nutrition.<sup>viii</sup>

The FHI360 Food and Nutrition Technical Assistance II Project (FANTA-2) and HKI conducted an assessment from June to July 2011 to identify how an ENA package could be integrated into the MaMoni Project, focusing on describing the current situation; identifying gaps, capacity needs, and opportunities for integration; and recommending next steps. Based on the results of that assessment and communication with MaMoni and other partners in Bangladesh, a strategy that provides broad recommendations for integrating nutrition into MaMoni was developed. This report provides the results of the assessment and describes a strategy to integrate nutrition into MaMoni’s health services.

## **OBJECTIVES OF THE ASSESSMENT**

The objective of the assessment was to identify how an ENA package could be integrated in USAID-funded health service delivery projects such as the MaMoni project. This objective was further broken down into several components:

- To describe the current situation in terms of which maternal and child health and nutrition (MCHN) services are being provided, to which target population, and through which service delivery mechanisms
- To identify gaps, capacity needs, and opportunities for integrating the ENA into health service delivery, focusing on:
  - Health service delivery systems: To identify nutrition services that can be integrated within the current health service delivery structure and within the programs’ mandates
  - Capacity and needs: To assess health providers’ level of knowledge, skills, and training in the area of nutrition and to identify areas in which human resources and capacity can be strengthened to deliver quality nutrition services
  - Quality improvement (QI): To describe current QI programs/efforts and to identify opportunities to strengthen QI programs within the context of defined quality standards
  - Monitoring and evaluation (M&E): To describe the current data management systems and identify opportunities to strengthen reporting on nutrition indicators
- To recommend concrete steps to effectively integrate nutrition into health services, within the context of the MaMoni program

### Essential Nutrition Actions

The ENA approach is an evidence-based set of seven cost-effective, integrated nutrition actions focused on improving maternal and child health. These are:

- Promotion of **optimal breastfeeding** during the first 6 months of life (e.g., initiation of breastfeeding within 1 hour of birth, EBF for 6 months)
- Promotion of **optimal complementary feeding** starting at 6 months, with continued breastfeeding to 2 years of age and beyond
- Promotion of **optimal nutritional care for sick and severely malnourished children**
- **Prevention of vitamin A deficiency** for women and children
- **Prevention and control of anemia** for women and children
- **Prevention of iodine deficiency**
- **Promotion of optimal nutrition for women**

### GEOGRAPHIC AREA OF THE ASSESSMENT

The MaMoni program area consists of Sylhet and Habiganj districts, in northeastern Bangladesh. However, the project activities began first in Sylhet, and technical staff were scheduled to transition to Habiganj in September 2011, after which program activities would focus primarily on Habiganj. The assessment therefore collected data only from Habiganj district (**Figure 2**).

**Figure 2. Map of Habiganj District, Bangladesh**



### SAMPLING METHOD

The sampling method was stratified purposive sampling. First, it was established that the study area, Habiganj district, consists of eight sub-districts, or *upazilas*. These eight *upazilas* are divided among two partner nongovernmental organizations (NGOs), with each partner NGO implementing the project in four *upazilas*. HKI obtained a list of the four *upazilas* for each NGO; these became the sampling strata. From each group of four, one *upazila* was selected randomly, for a total of two *upazilas*. These two *upazilas*,

Lakhai and Nabiganj, became the study sites. Each *upazila* has one Upazila Health Complex (UHC) as well as a number of smaller facilities. The assessment team visited each *upazila*'s UHC; additional interviews at other facilities were arranged by the NGO staff. Finally, interviews were conducted at the district level with several key figures.

## DATA COLLECTION METHODS

A mixed method approach was used for the assessment. Semi-structured interviews comprised the core of the assessment, including with front-line workers, health care providers, supervisors, managers, and beneficiaries at both the facility and community levels. These interviews were supplemented by provider-client observations, facility level checklists, and document review. Specifically, these included:

- Document review of:
  - General program documents describing MaMoni's goals, objectives, target populations, and activities, M&E plans, supervision and/or QI plans, as well as documents from the GOB relevant to nutrition policy, service delivery, and QI
  - Monitoring documents, such as quarterly reports and evaluation documents (e.g., baseline reports and other special survey reports)
  - Training materials, such as curricula and manuals
  - Job aids and information, education, and communication (IEC) materials currently being used in MaMoni, such as brochures, posters, leaflets, and flip charts
- Observation at field sites of:
  - Service delivery with beneficiaries at the facility level
  - Record-keeping practices, including review of patient charts, registers, and data collection tools at the facility level
  - Availability of supplies and materials (including pharmaceuticals, job aids, IEC materials, weighing scales, and monitoring forms)
- Semi-structured interviews with:
  - Front-line workers and health care providers (facility level and community level)
  - Supervisors and managers
  - Program staff
  - Beneficiaries

The data collection tools consisted of semi-structured interview guides, facility level checklists, and a provider-client observation guide. The tools were developed by HKI in collaboration with FANTA-2 and with feedback from MaMoni. All interview guides were translated into Bangla. Interview guides were field tested in MaMoni sites at facilities that were not to be included in the assessment sample and then revised and completed based on the results of the field testing.

The document review began in March 2011, while observations and in-depth interviews were conducted over two periods: the last week of June 2011 and the first week of August 2011. The data collection team consisted of five Master's level nutritionists, all with previous research experience. They received training in qualitative research methods over a period of 2 weeks immediately preceding data collection. The training included an overview of the assessment objectives, the ENA, and the MaMoni project; key concepts in qualitative methods; how to conduct effective in-depth interviews and observations; formulating open-ended questions; developing active listening and probing skills; research ethics; bias in research; how to write up raw field notes and expanded field notes; review of a sample day in the field; and extensive practice in the training venue, field level training, and final preparations for field work. A complete training agenda can be found in **Annex 2**.

The data collection involved conducting semi-structured interviews, completing facility-level checklists, and observing provider-client interactions at the facility level. All interviews were conducted in Bangla by the data collection team, who are native Bangla speakers. The only exceptions to this were the meetings with high level GOB officials and program staff, which were conducted in English. The data generated

included raw field notes, expanded field notes, and audio recordings. A complete field schedule, including details of levels of field staff interviewed, can be found in **Annex 3**.

The assessment methods and procedures were approved by the Institutional Review Board of AED.<sup>ix</sup> Written informed consent was obtained from all participants.

## DATA PROCESSING AND ANALYSIS

The mixed method approach produced primarily qualitative data, with a limited amount of quantitative data being collected through facility-level checklists. Data management activities, including formats, file naming, data organization, and physical archiving, followed a standard protocol.

Audio files were transliterated (i.e., transcribed and simultaneously translated into English) by the assessment team, typically by the same individual who conducted the interview. The first two transcripts produced by each team member underwent careful review by program supervisors. Following this, a random selection of transcripts was proofread by another member of the assessment team. The transcriptions were supplemented with expanded field notes from the interviews.

Coding took place concurrently with transcription. Completed transcripts were imported into ATLAS.ti 6.2 for coding and analysis. A code guide with operational definitions was developed by the lead researchers. The code guide went through a process of revision and refinement following informal testing by the lead researchers, who independently coded transcripts and discussed any issues or problems that arose. After reaching agreement on the final code guide, one lead researcher was tasked with coding all transcripts independently. Given that all coding was being done by the same person, there was no testing for intercoder reliability.

For analysis, the transcripts were grouped in ATLAS.ti into related “*families*.” These were:

- Community level: Those community members who participate in the health service delivery system but who are not service providers, including beneficiaries, husbands, and community leaders
- Front-line workers: Health service providers who work either in or outside of the government health service delivery system, but who work at the household and community level, including HAs, FWAs, traditional birth attendants (TBAs)
- Mid-level workers: Health service providers who work at the ward, union, *upazila* (sub-district), or district level and who do not typically work at the household level, including family welfare volunteers (FWVs), paramedics, sub-assistant clinical medical officers (SACMOs), and medical officers (MOs)
- Supervisors: Individuals whose roles are primarily supervisory and who provide limited to no direct health services, including health inspectors (HIs), family planning inspectors (FPIs), and *upazila* family planning officers/*upazila* health and family planning officers (UFPOs/UHFPOs).

## Results of the Assessment

---

### CONTEXT

In general, the interviews revealed that many health service providers are conversant in some nutrition topics, especially those topics that relate directly to maternal and child health. They regularly referenced standard recommendations around IYCF, especially for breastfeeding. They also demonstrated knowledge of maternal nutrition during pregnancy, such as the need for increased food intake and consumption of iron tablets. Some providers discussed maternal diet during lactation, often emphasizing that the mother must eat well for the baby to eat well. (As one TBA said, —“the mother eats well, then the baby gets good nutrition.”) Some described feeding recommendations for sick children, and a few mentioned kangaroo mother care (KMC) for sick and —“weak” babies. Much of this information was covered in the 5-day MaMoni Maternal Neonatal Health-Family Planning (MNH-FP) training, which all informants had received by the time of the interviews. The training therefore appears to have established a uniform base of knowledge. However, beyond this, a great deal of variability existed in the amount and accuracy of providers’ nutrition knowledge and the ways in which it was shared, which in turn likely leads to variability in the quality of services provided.

Providers were generally very interested in nutrition topics and services. They recognize nutrition issues to be a problem in their communities that needs to be addressed and express an interest in adding nutrition services. At all levels, providers expressed an openness to adding more on nutrition, frequently saying that they want to provide good quality services to their patients. They seemed to have in common a sense that nutrition should be a shared responsibility across the health system and, indeed, across society and that they would like to play an active role in fulfilling this responsibility. However, providers did not seem to have a clear sense of what this might entail. When asked about what specifically their roles could be, their responses indicated that they perceive nutrition services as delivering targeted messages to patients. As such, they would not be able to accurately judge the amount of time and effort involved in the provision of more interactive services, and their readiness to add nutrition services to their current workload may need to be taken with caution.

When asked, in turn, about the level of nutrition knowledge among their patients, providers seemed to perceive that people in their communities lack knowledge about nutrition and that some of the knowledge that they do have may be inaccurate. For example, several providers commented that people have misconceptions around nutrition, such as pregnant women being afraid to eat more or to consume iron tablets for fear of having their babies grow too large. They also said that many people in their communities think of nutritious foods as being expensive or imported foods such as apples; instead, the providers said that they counsel patients to eat leafy greens such as arum and kangkong, which are inexpensive and easy to grow or purchase locally. When asked whether patients bring up nutrition concerns, providers typically said that patients do not know enough to ask about nutrition. Rather, the providers identify nutrition issues and bring them up with the patients. However, providers’ own time, knowledge, and skill constraints limit their ability to effectively provide nutrition counseling. Regarding MOs’ perceptions of patient knowledge, one MO stated, —“There’s no education, they are not educated, how they can realize? If they could realize that, then the situation might be changed in our country.” The topic of education was brought up similarly by several informants, who emphasized that education was necessary for nutrition to improve.

From the perspective of community members, when asked about the quality of services received from the local health facility, some were generally positive, while others listed facility-level issues, such as a lack of trained providers, medicines, and equipment (particularly diagnostic testing equipment), as well as long waiting times. Some also mentioned barriers to accessing services, such as long distances combined with high transport costs to reach the facility. Community leaders brought up broader issues such as the low coverage of services, but they also said that they have good working relationships with the local health facilities and gave examples of their participation in the system. On the whole, community members had little feedback specific to nutrition services. This is likely due to a combination of a lack of nutrition services being provided and lack of knowledge on the part of community members about nutrition.



Individuals at the community level do not seem to know what they need in terms of nutrition services or what they should be receiving—or expecting and demanding—and therefore cannot make an accurate judgment as to the quality of nutrition services.

## **NUTRITION SERVICES BEING PROVIDED**

Within this context, providers often recognize a need for nutrition education and services, and they conduct some nutrition activities within the structure of their jobs. The most systematic and formalized of these activities is the provision of supplements: vitamin A capsules for infants and young children (6–59 months of age) and postpartum women and iron tablets for pregnant and lactating women (PLW). The vitamin A capsules for infants and young children are provided through the expanded program on immunization (EPI), which also provides antihelminths on national immunization days (NIDs). (Although antihelminths are not always included in the ENA, they fall under the category of control of anemia, as soil-transmitted helminths can lead to anemia due to intestinal blood loss.) Additionally, providers do counseling on an ad-hoc basis on breastfeeding, complementary feeding, nutrition care of sick children, and women's nutrition, especially for PLW. Few mentioned anything about consumption of iodized salt, the last ENA. Finally, per their job descriptions, FWAs organize courtyard sessions to discuss nutrition and other health topics with small groups of women, though the frequency and consistency of these sessions is not clear.

Further questions about the provision of iron tablets and vitamin A capsules for women post-partum revealed some inconsistencies. For example, some FWAs said they provide iron tablets, while others said they did not. Of those who did not, they said that the FWV or paramedic distributes iron tablets. At the same time, when an FPI (who supervises the FWAs) was asked about iron tablet distribution, he said explicitly that they —do not distribute iron tablets.” Some providers said they give iron tablets to lactating mothers, others said they did not. Similar inconsistencies came up around vitamin A capsules for post-partum women. In terms of supply, again, some providers and supervisors said that they have problems with the supply of iron tablets, while others said the supply was fine. Among those who said that the supply was not enough, a fairly typical response came from an FWV who said, “We are not fulfilling our patients' demand of iron tablets. Supplies are less, then patients are more. Most of the patients are coming from a long distance. They are not interested to frequently visit the centre. They are not continuing consumption when iron tablets are finished. We are not able to supply them more iron tablets at a time.”

Another area where inconsistencies arose was with regard to materials and job aids used in service delivery. When asked about this, providers described a range of posters, flipcharts, and leaflets. However, of the GOB providers who were interviewed, each one described a different range of materials (from no materials at all to a variety of flipcharts, books, etc.) that they used in their work. Most had very limited materials; one FWA said that she is using a flipchart that is 20 years old. Perhaps the most commonly referenced materials were those relating to the five risk signs of pregnancy complications, which are shown in the FWAs' antenatal care (ANC) flipchart, on posters that hang in some facilities, and in ANC cards that are given to pregnant women (though the supply of ANC cards seems to be variable, as some facilities had run out of cards at the time of the interview). A few providers mentioned using materials from the MaMoni 5-day MNH-FP training. None of the MOs listed any materials at all. Still, when asked about types of support that they would need to add nutrition activities to their work, materials did not seem to be a high priority. Some providers mentioned them, including materials that they could give patients to take home and review later on, but training and manpower were more frequent requests.

Overall, while providers acknowledge the need for nutrition services and attempt to meet this need within their capacities, the services being provided fall broadly into the categories of (a) transmission of nutrition messages, and (b) distribution of supplements. The transmission of nutrition messages is often very ad-hoc, unsystematic, and informal, with messages varying in accuracy and detail. Services are rarely more in-depth or hands-on than these. An exception to this would be the TBAs, who actively put the baby to the breast to ensure early initiation of breastfeeding and assist the mother in achieving correct position and attachment. However, providers within the GOB system generally do not take on this role of actively assisting or demonstrating nutrition activities.

## GAPS IN SERVICE PROVISION

In terms of gaps, it is important to state at the outset that many of the gaps that exist in service provision are likely due in large part to several system-level factors. First, in general, it seems that providers lack time to counsel patients in any depth due to their heavy workload. Second, nutrition services are for the most part neither a stated job responsibility nor a part of the formal reporting system, so they can easily become marginalized. Third, providers lack clear protocols or guidelines about the nutrition services that can and should be provided at each key contact point. As stated above, nutrition historically has not been integrated in the GOB health service delivery system, so the absence of protocols and guidelines is not surprising given the general absence of nutrition system wide. Still, these are underlying factors in all of the gaps in service provision and will need to be addressed in order for any nutrition interventions to be effective.

The provider-level gaps that exist can be broadly categorized as gaps in knowledge and gaps in skills. Although providers seem to have a basic foundation of knowledge of nutrition, it is not clear whether this knowledge goes in-depth beyond an ability to recount standard recommendations and guidelines around IYCF and maternal diet. In particular, knowledge is lacking about details of guidelines or their scientific rationale. Providers at all levels acknowledge this gap, stating that they would like to tell patients more about nutrition, but lack information and need additional training. However, to promote improved practices around nutrition, providers should not only be able to explain the details of their recommended behaviors, but should be able to demonstrate or provide interactive instruction for behaviors as well. This requires skills in communication and counseling, including problem solving and negotiating behavior change, which are generally lacking. Some exceptions exist, as TBAs in particular seem to be interactively teaching and explaining the importance of early initiation of breastfeeding and colostrum, but these types of hands-on services seem to be largely absent in the GOB system.

One critical gap in providers' knowledge is around complementary feeding. Specifically, it seems that many providers advise mothers to exclusively breastfeed for 6 months then to begin complementary feeding with family foods, such as *khichuri*. However, none of the providers mentioned advising mothers on other components of complementary feeding, such as dietary diversity, number of meals per day, or techniques for responsive feeding. These are essential components of complementary feeding, but it is not clear that providers' knowledge or service delivery extends to include these. This gap in knowledge could be due in large part to the fact that the MaMoni MNH-FP training addressed infant nutrition only for the newborn period, focusing on EBF. Providers have not had the same opportunity to learn about complementary feeding, which has resulted in uneven knowledge of optimal IYCF practices.

Another clear gap in knowledge exists around nutrition care of the sick child. This includes assessing the current feeding practices of sick children and counseling caregivers on appropriate nutrition care as an integral part of treatment of illnesses. Some providers did mention feeding recommendations for the sick child, which they may have learned through previous training on the Integrated Management of Childhood Illness (IMCI). The IMCI strategy, which has been introduced by the GOB in some districts of Bangladesh, includes a module on nutrition. However, IMCI has not been implemented in the GOB health services in Habiganj. Providers coming to Habiganj from other districts of the country may bring some professional or academic knowledge of IMCI, but most providers would not have received this training.

Similarly, there is also a gap in knowledge and skills around the measurement, classification, and treatment of undernutrition, including micronutrient deficiencies such as anemia. Protocols on managing malnourished children are not well defined by the GOB; when an FPI was asked how providers identify these children, he responded, —When a child of 2 years does not get sufficient height compared with age and through visual appearance, we think the child is malnourished.” Indeed, due partly to a lack of accessible equipment, such as infant scales, stadiometers/length boards, and hemoglobin testing equipment, most providers seem to be visually assessing (and grossly misclassifying) nutritional status. Especially in terms of child undernutrition, in a context where over 40 percent of children 0–59 months of age are stunted,<sup>x</sup> it is quite possible that providers see malnourished children so frequently that their ability to visually assess this form of malnutrition would be seriously impaired. In this sense, a sort of contradiction seems to exist in that providers recognize that nutrition problems exist in their communities,

yet they may be overlooking them in their facilities. Even when the problem is identified, providers lack a systematic approach to address the problem, as their ability to treat malnutrition is severely limited by a lack of knowledge, skills, supplies, and equipment.

At the supervisory and system level, a broader gap relates to reporting, supervision, and capacity strengthening. The GOB reporting systems include very few nutrition indicators: beyond tallying the distribution of iron and folic acid (IFA) and vitamin A supplements, some providers, but not all, report on numbers of malnourished children, anemic patients, and patients with night blindness. However, again, these categories are loosely defined and often inaccurately measured. This near-complete absence of nutrition in the reporting system implies that nutrition is not a priority, making it very easy to overlook at all levels.

Even for those indicators on which data is collected, the process seems to be unidirectional, with reports going up the hierarchy to supervisors and eventually to the Civil Surgeon and the Director General of Family Planning. The providers are not required or expected to use the reporting information in their own work, for example as part of a self-assessment process to improve their services. They simply pass the information along the supervisory chain, and none of the providers said anything about receiving feedback or suggestions based on the reports they had submitted. Some supervisors, when asked how they use the reporting information, said that they have monthly meetings where they discuss the information with their staff and identify gaps, problems, and solutions. However, it is not clear that providers are receiving supportive supervision to improve their service provision, nor does it appear that reporting information is being used to actively improve services or coverage. In this sense, reporting seems to be done only to fulfill a requirement rather than to inform change, empower providers, or improve quality of services. Finally, opportunities for training among providers are rare; none of the providers said that they had received any training on nutrition in the past 3 years.

## CHALLENGES

Informants mentioned several barriers to the provision of nutrition services. A frequently cited challenge is workload and time constraints. These are due partly to high patient volume and partly to staff shortages and unfilled vacancies that result in a higher patient to provider ratio. Many providers see large numbers of patients each day and simply do not have the time to counsel each one appropriately on diet and nutrition. Still, when asked what role they could play in providing nutrition services, some felt that they could add these services to their current workload without becoming overburdened—though, as discussed above, they also often seemed to think of nutrition services as only the transmission of targeted messages, which would not require much time or effort—while others expressed that staff shortages and vacancies had already left them overloaded and doing the work of more than one person. In these cases, providers suggested that existing staff vacancies would need to be filled to obtain the level of manpower needed for the integration of nutrition services.

A major issue for frontline workers is that they must work in several different locations, such as community clinics, satellite clinics, and individual beneficiaries' households across several villages. Several providers said that cost and transportation are issues for them, as their transportation allowances are minimal and do not cover the actual costs involved in performing their job responsibilities. Additionally, their lack of transportation options means that it is often difficult to carry materials, supplies, and equipment with them from one location to another. Of the six GOB frontline workers interviewed (two HAs and four FWAs), all said that they had some job aids, but when they were asked to show the job aids to the interviewer, they all said that the materials were in a different location. When one HA was asked about types of job aids that would be helpful, he said, —*Whatever we have, we could use that in our work easily. But apa, do something to carry our bundle (gatti). We have a lot of materials to carry, a large bundle. It creates problems. If we will have some carrying cost, field allowance... sometimes use boat for crossing river and sometimes use bus or rickshaw. We can smoothly do our work if we have a field allowance.*” These issues mean that even when providers can reach their working areas, the impact of their work is limited by their lack of materials and equipment.

Additionally, some frontline workers described challenges around resistance to receiving their services or following their advice, either from the patients themselves or from caregivers and family members. For example, patients and families sometimes have superstitions that prevent women from seeking health services, such as beliefs in ghosts that could attack a pregnant woman along the road. Also, patients' relatives and caregivers may resist following providers' advice, even when the patient is willing, for a variety of reasons. For example, one FWA said,

Sometimes we refer complicated patients to the health facilities center, and that time we face many problems. Patients' attendants do not agree to refer the patient anywhere; they want to call a *hature doctor* [a Bengali term for an unqualified provider of health services]. That time it's hard to convince them. They don't value our opinion. Sometimes the *hature doctor* also makes problems with me. What will I do then? I am alone then. They want to avoid the referral process because of distance, money, etc. The *hature doctor* is more cost effective to them. The *hature doctor* gives some injection and delivers baby and it makes vaginal tear and other infection.

Though it is not uncommon for women to come alone or with their children to health facilities, they often are accompanied by adult family members, such as a mother, mother-in-law, or sister-in-law, or, less frequently, by a neighbor. Providers therefore typically said that when possible, they speak with and counsel family members as needed to ensure that their instructions can be followed. For example, when one FWV was asked whether she discusses health and nutrition information with family members, she replied, —Yes if we do not discuss about pregnant woman and child care with family members, it is not possible for a woman [to] do it.” Several providers mentioned that they counsel mothers-in-law by reminding them that their grandchildren are their descendants and that they should ensure their daughters-in-law's health for the sake of their grandchildren. For example, a SACMO said, —When the mother-in-law and some other relatives come with the pregnant mother, we tell them to follow our instructions if they want to save the life of the child and ensure the baby's better health.” On the whole, however, these interactions are informal and unsystematic and depend on the providers' own motivation.

For supervisors, other challenges exist. Among the challenges cited were excessive workload (for themselves and their staff), transportation (again, for themselves and their staff), insufficient travel allowance to adequately supervise staff in different locations, and a lack of staff due to unfilled vacancies. Some supervisors expressed frustration around the unavailability and shortened working hours of staff. On a system level, the division of responsibilities between the Directorate of Health Services (DG-HS) and the Directorate of Family Planning (DG-FP) seems to be a source of tension for some, especially among those who work under the DG-FP. Several stated that they have to contribute to the work of the DG-HS, for example by assisting with EPI days, as well as other departments and ministries, but that no one helps them with their work. Finally, some said that they face shortages in terms of medicines, though others reported that their supply of materials and equipment was sufficient.

Supervisors also expressed a desire for more support from communities. As with the frontline workers, they described resistance from family members, especially with regard to family planning activities. However, they also expressed a desire for community mobilization and support from all levels of the community. Some said that they would like more support from community leaders, for example through community meetings. One UFPO said, —To keep family size small and to maintain maternal and child health well, everyone from all society, especially who work in local government organization or at union level; teacher of school, college, or madrasa; staff from other departments should come together in the same front in a platform.” They felt that health and nutrition should be a shared responsibility and that as much as they work, they cannot accomplish their targets without the support and focus of community leaders and the community at large.

The lack of participation by the community in nutrition services means that there is less impetus to provide these services. This gap was addressed by one UFPO, who described the need to —raise consciousness” so that the people of the community would feel empowered to hold the clinic and providers accountable for providing the services to which they are entitled:

Our service is so-so and we cannot provide quality service due to the large population. We need to raise more consciousness in all levels of society. Village people do not even know that it is their right to get services from the clinic... They think this hospital is a government center, it is not mine. They have no consciousness that it is also my asset and I have a right to get facilities from the clinic. The result is that they have no care on us and staffs work independently without impunity or accountability. Quality service cannot be provided until general people become conscious about health services. People know that there are some facilities at the hospital and they go to the hospital to get health service. If they do not get as much facility as they are informed, then they never protest against getting poor service. As a consequence, the doctor moves on his way. Local people, local government such as the Union Council does not monitor his or her work.

When providers were asked whether patients ever brought up nutrition concerns, they consistently said that patients did not. Therefore, without any official requirements within their job responsibilities to provide nutrition services or report on nutrition indicators, and without any demand from the community for nutrition information or services, nutrition is unlikely to be prioritized by providers who have many other demands on their time. Still, several providers also expressed an interest in working with community leaders or other respected individuals to raise awareness of nutrition issues, which would take nutrition messages out of the health facility and into the community to reach even more people.

## OPPORTUNITIES FOR INTEGRATION OF HEALTH SERVICES

Understanding the current situation, including the nutrition services being provided and gaps in service provision, allows for an analysis of opportunities for the integration of nutrition services. Based on the assessment findings, it seems clear that although some nutrition services are being provided, they are largely incomplete and in need of expansion and standardization. The base of knowledge established by MaMoni along with providers' interest in nutrition services provide a foundation on which to build. An opportunity exists now to take nutrition services beyond transmission of basic messages and distribution of supplements to address attitudes and practices in a way that can more effectively promote behavior change. Changes are needed at the system, facility and provider level in order to accomplish the integration of nutrition into existing health services.

Any decision to expand nutrition services should, of course, take into consideration the scientific evidence of the interventions' effectiveness. The 2008 *Lancet* series on maternal and child undernutrition included a review of nutrition interventions and their potential effectiveness. Based on the review, counseling on breastfeeding and complementary feeding were among the interventions described as having —the greatest potential to reduce the burden of child morbidity and mortality.”<sup>xi</sup> Complementary feeding in particular should be emphasized within the GOB health system because a clear knowledge gap exists among providers, despite the heightened risk of growth faltering during the age range of 6 to 24 months.<sup>xii</sup> <sup>xiii</sup> To promote improved complementary feeding practices during this critical period, providers' knowledge, counseling skills, and practices must all be strengthened. Research has shown that this is possible, as several interventions in developing countries (including in India and Pakistan) have resulted in improved service delivery as well as improved complementary feeding practices and nutritional status by working within the existing health service delivery system.<sup>xiv, xv, xvi</sup>

Though counseling skills are crucial for services along the full spectrum from prevention to treatment, additional skills are necessary for the accurate classification and treatment of undernutrition and micronutrient deficiencies, especially anemia, in young children. It is well established that undernutrition is a direct or underlying cause in approximately half of young child deaths. Still, in a 2000 study that measured quality of care for children under 5 in GOB health facilities, researchers found that —almost none of the children whose weights were very low were correctly classified” and —one of the children presenting with [anemia] was treated correctly.”<sup>xvii</sup> Though this study was done in another district of Bangladesh, there is reason to believe that quality of care would be similar in Habiganj, given the similar conditions in GOB health facilities nationwide. Providers' capacity therefore needs to be strengthened with improved techniques and equipment to assess children's nutritional status (by looking for symptoms systematically and identifying them accurately) and to counsel and treat for undernutrition and anemia.

Closely related to the need for treatment of undernutrition is the need for services around nutrition care for sick children. As discussed above, the IMCI strategy includes a module called “Counsel the Mother,” in which providers assess feeding practices and counsel mothers or caregivers on nutrition care for sick children. Even training providers in only this module, without the rest of the IMCI modules, has been shown to result in behavior changes among providers and caregivers, as well as significantly improved anthropometric status in children 12–24 months of age.<sup>xviii</sup> This could be further complemented by social and behavior change (SBCC) approaches targeting family members who would need to support the mother to ensure that she has time to tend to the sick child. However, IMCI has not yet been rolled out in Habiganj district at either the community or facility level. The services being provided for sick children in Habiganj are therefore likely to reflect those in the 2000 study discussed above, which was a baseline survey conducted prior to introduction of IMCI in another district of Bangladesh. There, the results showed that only “one in every 20 caregivers was advised to give extra fluids and to continue feeding the sick child” as per IMCI protocol.<sup>xv</sup> Again, despite the data having come from another region of Bangladesh, the findings likely apply to Habiganj as well.

A final area where additional training may be necessary is the care of low birth weight (LBW) babies. An estimated 22 percent of infants born in Bangladesh are LBW.<sup>xix</sup> LBW can be caused by poor maternal nutritional status before and during pregnancy, among other factors, and it can be an important risk factor for infant morbidity and mortality. Some cultural practices in Bangladesh may contribute to the high prevalence of LBW, such as the common misconception, often perpetuated by mothers-in-law, that pregnant women should limit their food intake to prevent their baby from growing too large and creating difficulties during labor and delivery. Providers often address this misconception by encouraging pregnant women to eat more, but they conversely do not seem to discuss the risks of eating too little. In general, providers also seem to lack a good method for determining whether babies are of a healthy birth weight (and, as a corollary, whether babies are healthy or unhealthy), though some mentioned that they judge babies based on their color or whether they “seem weak.” Even among those who identified babies as weak or LBW, there did not seem to be a great deal of knowledge about special recommendations for feeding and care of these babies.

To achieve improved nutrition outcomes, nutrition services should particularly focus on working interactively with patients to negotiate behavior change through problem solving and, where applicable, demonstration, practice, and peer support. This is challenging because providers’ time with each patient is limited. However, providers do currently share some nutrition information, but not necessarily accurate information, and they do not always employ effective counseling skills. Strengthening nutrition counseling skills will help providers optimize the time spent with each patient. Families are unlikely to follow providers’ advice on nutrition if the advice requires behavior changes that are challenging, whether due to resource constraints, household dynamics, or personal beliefs, or that are culturally unfamiliar. In these situations, a skilled counselor may be able to work with patients and families to identify strategies through which they would be more likely to adopt the recommended behaviors. They can also assist families who have attempted to adopt behaviors but have encountered obstacles. For example, many challenges can arise for a newly breastfeeding mother, from lack of time to breastfeed (especially to breastfeed frequently and on demand, as required for EBF) to perceptions of insufficient milk flow to painful infections, any of which can in turn lead the mother to discontinue breastfeeding. This need to move beyond messages to more intensive, interactive counseling and problem-solving was documented in the evaluation of HKI’s 1-year ENA pilot project in 2009 and should be taken into consideration for future program implementation. However, again, training in counseling skills must be accompanied by strengthening of diagnosis and treatment.

Providers’ interactions with family members should also be more formalized and systematic. Though providers do often speak with the individuals who accompany a patient, as described above, this is entirely informal. However, family members, particularly husbands, hold a great deal of decision-making power over women’s health care; according to one report, 48 percent of women in Bangladesh state that their husbands alone made decisions regarding their health care.<sup>xvi</sup> Despite this, husbands typically do not come to the health facility with their wives (an exception being when couples come together for family planning services) nor are they usually at home when the frontline workers visit households. This limits the effectiveness of the health service providers, who offer advice to women who may lack decision-

making power in their households. Providers should therefore engage family members and community members in a systematic way in order to mobilize them for nutrition actions.

An important consideration in planning how to engage families relates to the timing of information and services. Timing is important because the ENA approach emphasizes key contact points throughout the life cycle when nutrition services can have the greatest impact, such as at delivery and regular well-baby checks. Though the MaMoni project trained a number of high-volume TBAs in nutrition topics, many women still deliver at home with untrained TBAs or with only family members present. Additionally, most babies are not seen by a trained provider soon after birth, many not until they begin receiving immunizations. Given that up to 75 percent of newborn deaths occur in the first week of life and over 50 percent of newborn deaths occur at home,<sup>xx</sup> the lack of contact between the GOB health system and families in this critical period should be addressed. These are examples of times when increased outreach efforts may be necessary to reach families with necessary nutrition services.

In order for the GOB health service delivery system to expand services to include more nutrition actions, additional support will be needed. When asked whether they could add nutrition activities to their current workload, providers generally said that they could. However, when they were asked what type of support they would need to carry out nutrition activities, frontline providers within the GOB system (HAs and FWAs) all said that they would need support to manage their workload. Government service providers at all levels also consistently said that they would need training. (At the same time, when asked about the nutrition information in the recent MaMoni training, which they had all received, they universally said that they had not learned anything new about nutrition and that they knew all of the information previously. Only the TBAs said that they had learned new information relating to nutrition as well as to delivery practices and personal hygiene.) These human resource issues will need to be addressed as the program moves forward with implementation.

Ultimately, these human resource issues should be part of a larger systematic and cultural shift within the health service delivery system. The most successful programs use data and information for program planning and improvement to achieve maximum impact over the life of the program. The same should be true at every level of the GOB health service delivery system, from the individual provider to the supervisory and management levels. Providers must be able to take the data and information that is in front of them (e.g., the signs and symptoms of a nutritional disorder or deficiency) and adapt, modify, and customize the services they are providing to the individual patient, selecting from the full range of nutrition services, to maximize the potential impact of that contact. Supervisors should expect this and should make their expectations clear and consistent. This culture of using information to maximize impact requires going beyond the status quo, doing more than the basics of what is written in a job description and having the critical thinking skills and initiative to make the most of limited interactions with patients.

One of the biggest challenges to achieving improved nutrition outcomes may simply be reaching people with nutrition services, which is somewhat outside of MaMoni's control, as the project works through the GOB health system. Bangladesh faces a serious health worker shortage, which results partly in low overall health service consumption and partly in some patients seeking health care from providers in the NGO or informal sector.<sup>xxi</sup> Indeed, the number of unqualified providers in the informal sector is much larger than the number of qualified providers or even semi-qualified paraprofessionals (such as FWVs) and community health workers (CHWs) (such as FWAs). While the number of both qualified and unqualified providers is increasing, the number of unqualified providers is increasing much more rapidly.<sup>xix</sup> The implication of this is that the proportion of the population being reached by the GOB health service delivery system is likely declining as the informal sector grows. Given that a minimum coverage level of 70 percent is recommended to achieve population-level impact, it is unclear to what extent the GOB health service delivery system can affect nutrition outcomes with declining coverage levels.<sup>ix</sup> Community mobilization will therefore be even more important in the future to ensure that nutrition services reach their intended target population.

## **Recommended Strategy for Integrating Nutrition into MaMoni**

---

Based on the results of the assessment, this strategy provides recommendations on three components of integrating nutrition into MaMoni's health services in Habiganj, Bangladesh, namely

1. Whom to target:
  - For nutrition services, target a population that goes beyond just pregnant women and neonates to include all PLW, children under 2 years of age, and adolescents.
  - For SBCC, target the entire community to reach women/mothers, men/fathers, mothers-in-law/grandmothers, caregivers, community leaders (elected and religious), and adolescent girls and boys.
  
2. What to integrate:

The ENA should be integrated at the health service and community levels (see **Figure 3** for how this can be implemented).

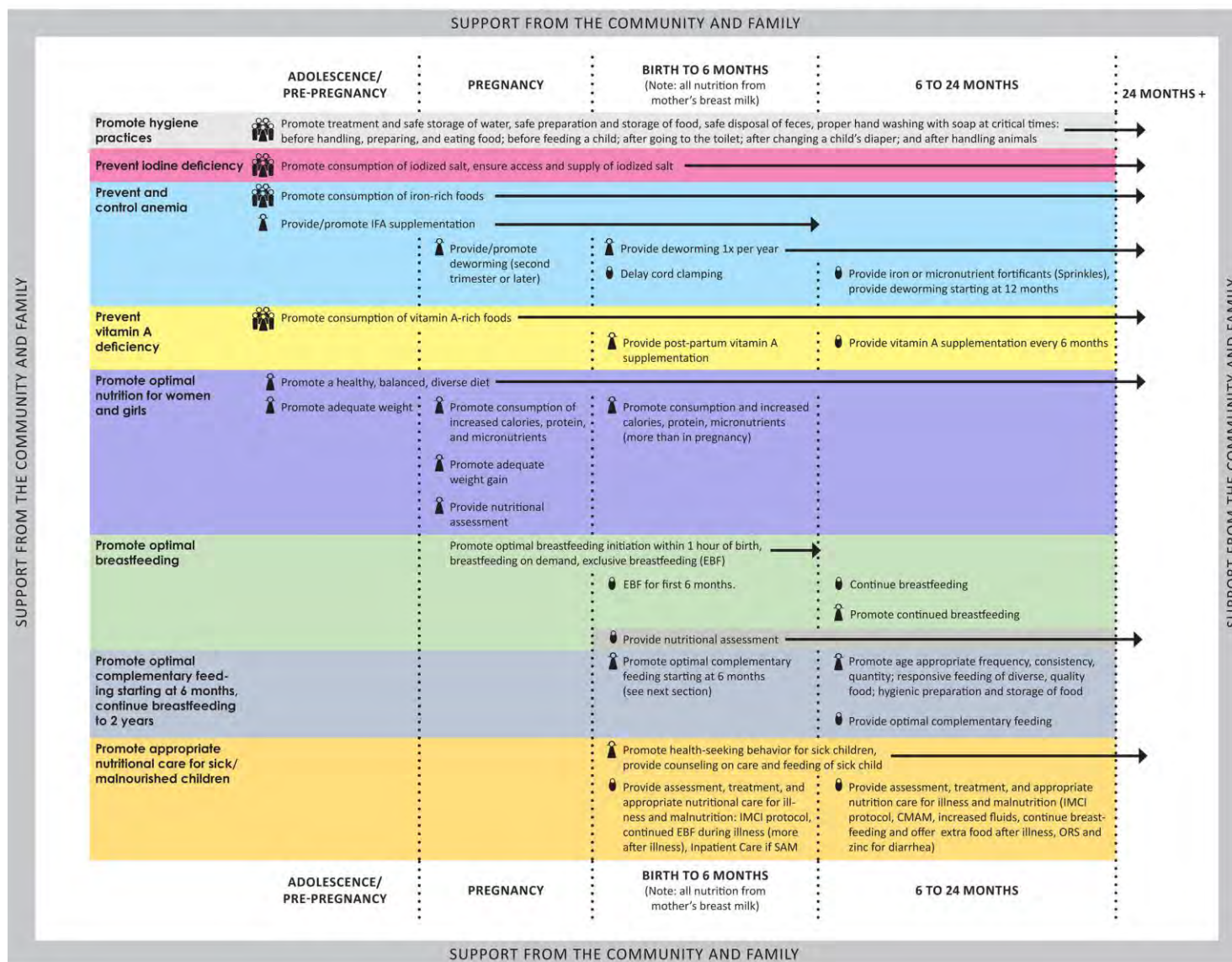
  - Health service-level provision:
    - Optimal care of sick and malnourished children
    - Prevention of micronutrient deficiencies: vitamin A, iron, iodine, and zinc
    - Maternal nutrition
    - Key hygiene practices

Note: The ENA on optimal breastfeeding and complementary feeding are included in A&T's work with MaMoni.
  - Community-level promotion:
    - All seven ENA
    - Key hygiene practices
  
3. How to integrate nutrition:
  - Promote social and behavior change.
  - Strengthen nutrition service delivery.
    - Provide nutrition services at the community level.
    - Recruit staff.
    - Improve the quality of services.
    - Incorporate nutrition indicators into the health information system, in collaboration with ICCDR,B, MEASURE Evaluation, and the GOB.
    - Build multisectoral linkages.
  - Implementation should occur in phases, with initial testing before scale-up.



Figure 3. Ways to Integrate the ENA at Different Life Stages

## Essential Nutrition Actions and Key Hygiene Practices



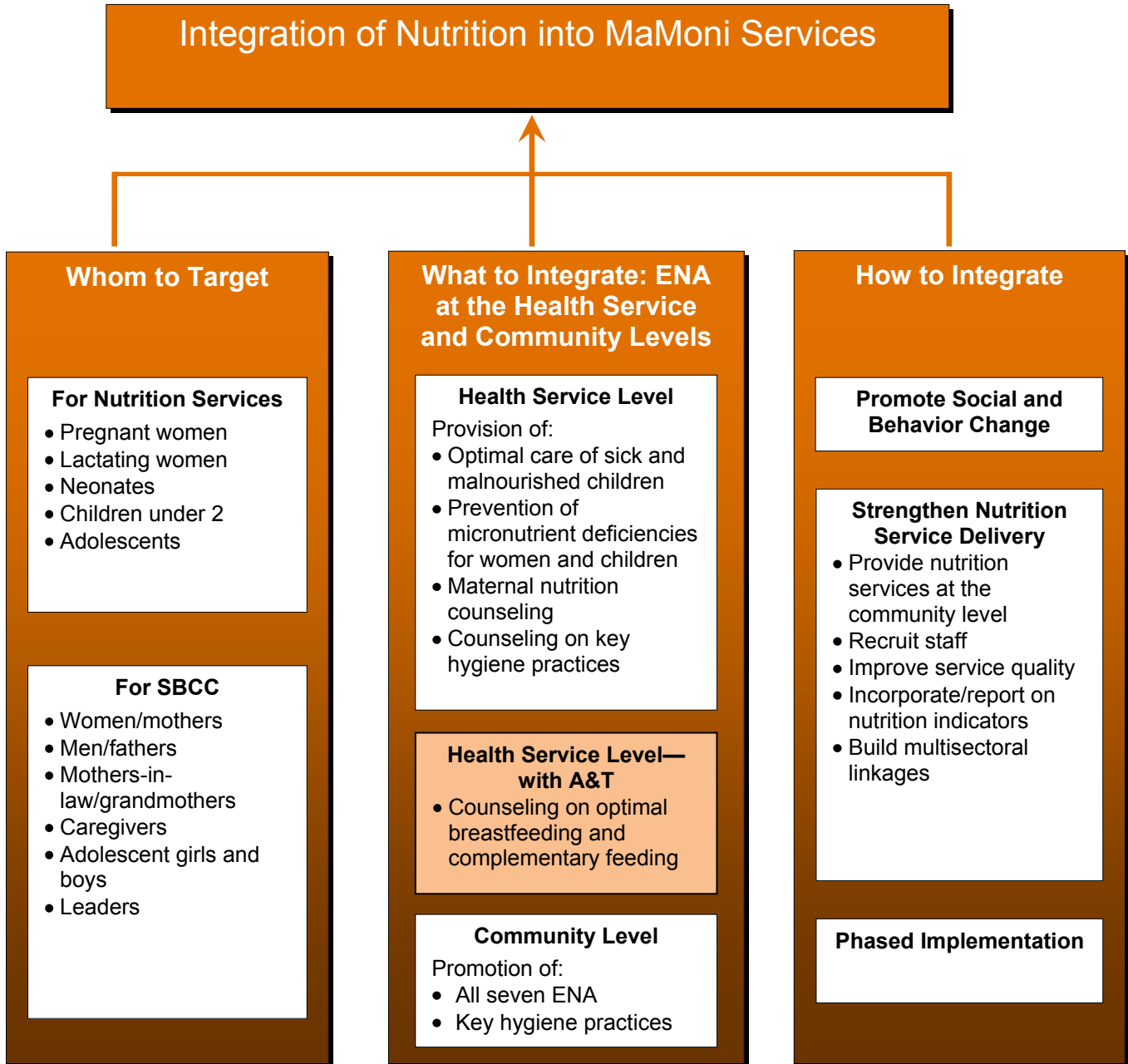
Targeted Beneficiary: Community Woman Baby

We recommend building on MaMoni's existing nutrition activities and work with A&T to increase the breadth, depth, quality, and reach of MaMoni's nutrition services. In addition, we suggest working to improve the supportive environment that enables mothers and caregivers to access quality nutrition services and improve their nutrition practices.

To the extent possible, the strategy works within MaMoni's program design and current human and financial resources. However, the strategy includes recommendations that would change the scope of the MaMoni program and require increased up-front or sustained investment. We recommend that the nutrition program target all PLW, children under 2 years of age, and adolescent girls and be based on and include all appropriate ENA and hygiene practices at key contacts. In addition, the program should provide social support and social and behavior change programming at the community and household levels, building on the local community action groups (CAGs) and networks of community volunteers and reaching men, mothers-in-law, and adolescents in addition to mothers. To be effective, the program must go beyond delivering basic nutrition information and messages and seek to understand and address other factors underlying nutrition and care-seeking behaviors, including household- and community-level norms and traditions; the roles of men, women, and other household members; perceived barriers and benefits to key nutrition behaviors; decision-making power; quality and dependability of services; and the often-limited resources of households.

**Figure 4** shows the breakdown of key recommendations for integrating nutrition into MaMoni Services.

**Figure 4. Key Recommendations for Integrating Nutrition into MaMoni Services**



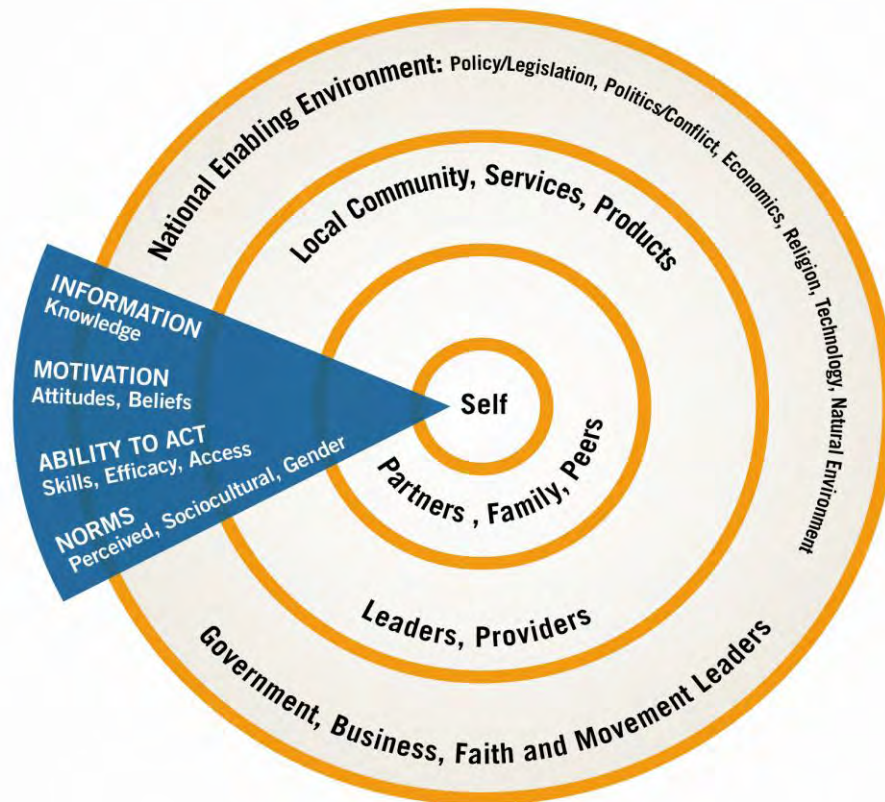
**ABOUT SBCC**

SBCC uses a socioecological model (**Figure 5**) to examine several levels of influence to ignite change. At the center of the model are those individuals who are most affected by undernutrition in Bangladesh. Those in the next two layers, including partners, family, peers, service providers, and community and religious leaders, can directly influence those most affected by undernutrition by helping to shape community and gender norms, access to and demand for community resources, and existing services. Those in the outer ring are indirect influencers who make up the enabling environment, which can facilitate or hinder positive nutrition practices.

In addition, each level is influenced by several cross-cutting factors, including social and gender norms. These factors also recognize that people's actions are influenced by:

- Information that is timely, accessible, and relevant
- Motivation, often represented by attitudes and beliefs
- The ability to act, which includes skills, self-efficacy, and access to services and adequate food

**Figure 5. Socio-Ecological Model**



**SOURCE:** Adapted from McKee, Manoncourt, Chin and Carnegie (2000)

## 1. Target Groups

---

### 1.1. NUTRITION SERVICES: PREGNANT AND LACTATING WOMEN AND CHILDREN UNDER 2 YEARS OF AGE

Conception through age 2, also known as the first 1,000 days, is the period when a child is at greatest risk for undernutrition. Because this is the stage of most rapid growth and development, PLW, and children under 2 have relatively high nutritional needs. A mother's nutritional status before and during pregnancy affects her child's health and development; infants born to undernourished mothers have a higher risk of LBW and neonatal complications. Meanwhile, suboptimal feeding practices and high risk of illness and infection make children under 2 years of age more vulnerable to growth faltering and undernutrition than at any other time in the life cycle, the consequences of which are long term and sometimes irreversible after age 2.<sup>xxii</sup>

This age range, however, also presents the greatest opportunity to promote healthy growth and development because since children are growing so rapidly they are also more responsive to nutrition interventions than at any other time. Targeting nutrition programs to PLW and children under 2 is the most cost-effective approach to preventing undernutrition and its long-term consequences.<sup>xxiii</sup>

The international community has reached consensus on the need to target the first 1,000 days, and the SUN movement, of which Bangladesh is a member, focuses specifically on this target group. Therefore, in light of the GOB commitment to SUN and the clear benefits of targeting this age group for nutrition services described above, this strategy recommends that MaMoni expand beyond the maternal and neonatal age group for its nutrition program.

In addition to the first 1,000 days, adolescence is another period of rapid growth during which nutritional needs increase, including increased energy and iron intake. If these increased needs are not met, adolescent girls are at risk of malnutrition. In Bangladesh, 35 percent of girls 15–19 years of age are malnourished and the median age of a mother when she delivers her first child is about 19 years. Their age increases risk of pregnancy complications, and poor pre-pregnancy nutritional status puts them at further risk. Ensuring that adolescent girls are well-nourished is also essential to reducing maternal malnutrition, maternal mortality, LBW, and pre-term birth.

### 1.2. SOCIAL AND BEHAVIOR CHANGE COMMUNICATION: WOMEN/MOTHERS, MOTHERS-IN-LAW/GRANDMOTHERS, MEN/HUSBANDS/FATHERS, CAREGIVERS, ADOLESCENTS, COMMUNITY LEADERS, AND THE MEDIA

Social and behavior change programming recognizes that individual behavior change depends on a person understanding the key behavior; having the resources, motivation, and ability to practice that behavior; and having a supportive environment. Because care and feeding require tradeoffs in terms of how a woman spends her time, caregivers require support from their communities and families to practice optimal behaviors. MaMoni should use its linkages with communities to expand its current services, targeting mothers, fathers, mothers-in-law, caregivers, unmarried and newly married adolescents, family members, and influential community members with SBCC to create an enabling environment to improve nutrition practices. Fostering this enabling environment is a challenging but essential objective of social and behavior change to improve nutrition.

## 2. What Should be Integrated

---

The SUN Framework highlights internationally agreed upon evidence-based interventions that it recommends SUN countries, including Bangladesh, implement to prevent and treat undernutrition. The focus is on prevention of all forms of undernutrition, but treatment will also be necessary for those children who still become acutely malnourished. The nutrition interventions are captured in the ENA, an evidence-based, set of cost-effective, integrated nutrition actions to improve maternal and child health<sup>xxiv</sup> (see a detailed summary of the ENA in **Annex 4**). In addition, efforts to improve hygiene practices to prevent diarrhea, which has a strong relationship with nutrition, are needed (see the key hygiene practices listed in **Annex 5**). These are a package; all of them are needed together to support the health of women and children.

### 2.1. ENA AND HYGIENE AT THE HEALTH SERVICE LEVEL

Within health services, the ENA can be integrated into maternal and child health contact points, including ANC, delivery, postpartum care, immunization, well-baby visits, and sick child visits. A&T is already working with MaMoni to integrate the first two ENA—optimal breastfeeding during the first 6 months and optimal complementary feeding with continued breastfeeding to 2 years of age—into their health services, including training staff and community volunteers. This strategy complements that work and focuses on the other ENA that can be provided at the health service level. These ENA are described further in this section.

#### 2.1.1. Optimal Nutritional Care of Sick and Severely Malnourished Children

Providing optimal care to sick and severely malnourished children includes accurate assessment and diagnosis of a child's health and nutritional status and appropriate treatment and care, including oral rehydration solution (ORS) and zinc for diarrhea, vitamin A for measles, and counseling caregivers to continue to feed and increase fluids during illness and increase feeding after illness. Children with LBW (less than 2,500 g) or moderate acute malnutrition (MAM) require special feeding support, and children with severe acute malnutrition (SAM) require referral for medical management and therapeutic feeding. Appropriate care provided to sick children helps reduce the severity of the illness and prevent the malnutrition and death that may result from severe, repeated, or long-term illness and malnutrition.

The FANTA-2/HKI assessment identified that provider knowledge of nutrition assessment and nutrition care of the sick and malnourished child is a clear gap in the current program. Because Habiganj has higher prevalence of diarrhea (16 percent), fever (63 percent), acute respiratory infection (11 percent), GAM (11 percent), and SAM (1.7 percent)<sup>xxv</sup> than the Bangladesh national average, integrating care of sick and severely malnourished children into MaMoni's sick child visits is a high priority.

#### 2.1.2. Prevention of Vitamin A Deficiency

Vitamin A deficiency compromises the immune system, increasing a child's risk of illness and death. Prevention of vitamin A deficiency is essential to promoting child health. At the health service level, providers can counsel caregivers on a healthy diet for mother and child. For children under 6 months of age, this means EBF. For children over 6 months, this would include vitamin A-rich foods, breast milk, and twice-yearly high-dose vitamin A supplementation. Post-partum women receive one high dose supplement within 6 weeks of delivery.

The assessment found that vitamin A supplementation of children, provided through the EPI and NIDs, was the most systematic nutrition activity provided in MaMoni's service area. The 2007 Bangladesh Demographic and Health Survey (DHS) reported that 88 percent of children 9–59 months of age in Sylhet Division, where Habiganj is located, had received a vitamin A capsule in the previous 6 months. Vitamin A supplementation of post-partum women was less consistent and should be strengthened. MaMoni should continue supporting the GOB vitamin A supplementation program.

### **2.1.3. Promotion of Adequate Iron Intake and Prevention and Control of Anemia**

Anemia, which occurs when there is insufficient hemoglobin in the blood, has severe consequences. About half of anemia cases worldwide are caused by iron deficiency, the most common nutritional deficiency in the world. Anemia increases the risk of maternal and perinatal mortality, premature birth, and LBW and reduces cognitive development and productivity. Nutrition interventions to prevent and control anemia include IFA supplementation for pregnant women, provision/promotion of micronutrient powders (e.g., Monimix) for children,<sup>xxvi</sup> and dietary counseling. Deworming and malaria prevention and treatment also help prevent anemia from non-nutrition causes.

Although IFA supplementation of pregnant women is a national policy in Bangladesh, the assessment in Habiganj indicated that services and supplies are inconsistent and vary in quality from one ANC service provider to another. In addition, counseling skills and dietary knowledge of iron-rich foods were also identified as gaps among service providers and clients. Therefore, it will be important to take steps to improve the knowledge and counseling skills of service providers and ensure adequate supplies.

### **2.1.4. Promotion of Adequate Iodine Intake**

Iodine deficiency is the leading cause of preventable brain damage, causes nervous system disorders, and is associated with neonatal deaths, stillbirths, and miscarriages.<sup>xxvii</sup> A very effective method of preventing iodine deficiency is consumption of iodized salt, which is available in Bangladesh. Dietary counseling to promote iodized salt consumption should be provided at all appropriate contact points. In addition, it would be useful to conduct market research on the price of iodized salt to determine if there are any price-related constraints to access. If so, MaMoni could use its linkages to the GOB and suppliers to work on reducing iodized salt prices.

### **2.1.5. Optimal Nutrition for Women and Adolescent Girls**

In addition to the micronutrient and anemia prevention activities already summarized, optimal nutrition for women and adolescent girls focuses on a balanced, diverse diet that meets their energy needs. Nutritional needs increase during adolescence, which is a time of rapid growth. Proper nutrition during this time period focused on achieving a healthy weight and preventing anemia will ensure that a woman or girl is well nourished before becoming pregnant, reducing the risk of maternal mortality, pre-term birth, and LBW in future pregnancies. Women also have greater nutritional needs during pregnancy and lactation and should consume extra energy, protein, and micronutrients, such as iron and calcium. Tracking weight, counseling for adequate weight gain, and providing nutrition counseling as part of family planning, ANC, post-partum care, provision of IFA, deworming, and social and behavior change at the community level to achieve commitment from family members to support maternal nutrition are key to ensuring women and adolescent girls get the nutrition they need for their own and their children's health.

### **2.1.6. Hygiene Practices**

Children who experience frequent bouts of diarrhea are at greater risk for growth faltering.<sup>xxviii</sup> In addition, unsanitary feeding practices and malnutrition, including micronutrient deficiencies, increase the risk of diarrhea and diarrhea-related mortality. Yet hygiene interventions are often neglected in nutrition programs. At the health service provider level, counseling on safe storage and treatment of water at the point of use, safe preparation and storage of food, hand washing with soap at critical times, and sanitary disposal of feces is essential. In addition, it is imperative that health providers adopt these same practices themselves to prevent infection and serve as community role models.

## **2.2. PROMOTION OF ENA AND HYGIENE AT THE COMMUNITY LEVEL**

The strategy recommends that all of the ENA, including optimal breastfeeding and complementary feeding (described below), be promoted at the community level through SBCC and community-level service provision. This will complement MaMoni and A&T's training of health providers and counseling



mothers on IYCF by integrating EBF and complementary feeding into the community-level SBCC that will also cover the other five ENA and key hygiene practices.

### **2.2.1. Optimal Breastfeeding during the First 6 Months of Life**

Optimal breastfeeding provides the ideal nutrition for an infant under 6 months of age and reduces the risks of infant illness and death. This intervention was identified as essential by the *Lancet* series on maternal and child undernutrition.<sup>xxix</sup> This intervention relies on the mother to initiate breastfeeding within 1 hour of birth; breastfeed exclusively, providing only breast milk and no other foods or liquids for the first 6 months; and breastfeed on demand, up to 12 times per day. To successfully breastfeed, a woman needs support to learn correct positioning and attachment and to shift many of her household responsibilities to other family members so that she has adequate time and rest to breastfeed. Health service providers can counsel a mother, father, and mother-in-law about optimal breastfeeding and the need for family support during ANC, post-partum care, and well-baby visits.

### **2.2.2. Optimal Complementary Feeding Starting at 6 Months with Continued Breastfeeding to 24 Months and Beyond**

Beginning at 6 months of age, breast milk is no longer sufficient to satisfy an infant's nutritional requirements to support growth and development.<sup>xxx</sup> At this age, caregivers should begin to provide semi-solid and solid foods, in addition to continued breastfeeding. Complementary feeding is often a challenging intervention as there are several key practices necessary to achieve optimal practices, including timely introduction of foods at 6 months of age; continued breastfeeding; age-appropriate food consistency; age-appropriate food frequency; a varied diet that includes animal-source food; proper hygiene during food preparation, storage, and feeding; and responsive feeding, paying attention to an infant's hunger cues. Health service providers can provide counseling and demonstrations to mothers, fathers, caregivers, and mothers-in-law in order to promote optimal complementary feeding, beyond introduction of food at 6 months. The assessment indicated that MaMoni providers are generally aware of the need to begin complementary feeding at 6 months, but do not provide counseling or information that addresses the other essential aspects of complementary feeding.



### 3. How to Integrate Nutrition into the Mamoni Project

---

The ENA discussed in **Section 2** can be integrated into the MaMoni Project by, for example, promoting social and behavior change, strengthening nutrition service delivery, and implementing in phases with initial testing before scale-up. A summary of actions that can be taken at different service points can be found in **Annex 6**.

#### 3.1. PROMOTE SOCIAL AND BEHAVIOR CHANGE

Data from the FSNSP from 2010, the 2007 Bangladesh DHS, and formative and behavior change research conducted in Bangladesh in 2004 and 2011 indicate that care and feeding practices are a factor in maternal and child nutritional status in Bangladesh.<sup>xxxi</sup> In addition to insufficient knowledge of optimal breastfeeding and complementary feeding practices, caregivers were faced with challenges, such as insufficient time to tend to their own and child's health and nutritional needs while also managing other household responsibilities and insufficient support within the household and community. It is clear that social and behavior change around nutrition, including promotion of optimal feeding and health care-seeking practices as well as support for mothers to overcome barriers to practicing these behaviors, is a necessary part of any strategy to improve nutrition in Habiganj.

Optimal child care and feeding require tradeoffs in terms of how a woman spends her time. EBF can require 8 hours a day of a mother's time, responsive feeding requires focused attention on a child, and proper hygiene to prevent contamination of food and drinking water requires the entire family's commitment to promising practices. A mother needs support from her family and community to practice these and other optimal behaviors to ensure the long-term health of the child. Support may include help doing chores, housework, child care, or food preparation. Importantly, this requires the whole family's participation and should not require an older sibling to miss school to help out at home.

We recommend that MaMoni engage and mobilize the community through CAGs and advocacy (both described in **Section 3.1.1**) to raise the profile of nutrition issues. MaMoni could also use its existing linkages with communities to expand its current reach of behavior change programming to target mothers, fathers, mothers-in-law, unmarried and newly married adolescents, family members, and influential community members to create an enabling environment to improve nutrition practices (described in **Section 3.1.2**). This includes incorporating nutrition counseling and support into household and facility visits; establishing community health groups (CHGs) facilitated by FWAs, CHWs, and community volunteers; and providing accessible information at public locations, including health facilities and common gathering places.

Specific behavior-focused programming should be developed for each target audience. This will be based on their role in ensuring maternal and child nutrition and consider the barriers and constraints facing the family. Social and behavior change should be led by health care providers, community leaders, and peers—a horizontal approach that has been effective at improving nutrition behaviors in multiple settings. The program should use interpersonal communication methods identified as promising in Habiganj, both one-on-one and group level, and reach people in the community, common gathering spots, their homes, and the health system.

The social and behavior change work will require an initial investment in technical assistance to help MaMoni develop messages and materials and train health workers and volunteers. In addition, effective implementation of the entire social and behavior change intervention will require increased staffing and volunteers.

##### 3.1.1. Engage and Mobilize the Community

The assessment noted that although acute and chronic malnutrition are both serious problems in Habiganj, community members are not aware of the scope of the problem, its causes and consequences, or what nutrition services they could or should demand. Therefore, it will be important to raise the profile

of nutrition as important to the health and success of the community and to help communities and families increase their commitment to finding and owning solutions to reduce maternal and child malnutrition. Community engagement will help motivate sustainable individual-, household-, and community-level behavior change and increase demand for quality nutrition services over the long term.

Suggested approaches to engage the community in nutrition are discussed below.

### *Community Action Groups*

The MaMoni Project currently engages the community through problem-solving and planning groups called CAGs. The CAGs are composed of 25–30 community members, some with both male and female members and some with separate groups for males and females, and are facilitated by trained community volunteers. They use a community action cycle approach to identify priority maternal and neonatal health issues facing the community and develop and implement community-led solutions. In various communities, CAGs have arranged emergency transport systems, developed emergency health funds, and opened and improved clinics. About 60 percent of CAGs conduct the community action cycle independently without external support from MaMoni.<sup>xxxii</sup>

CAGs are a long-term approach to improving health and nutrition through community action. They currently meet monthly and go through a cycle—the community action cycle—that starts with selecting a top priority problem and then planning, acting out, and evaluating their actions. They focus on one or two issues at a time. At any given time a CAG may or may not be working on a nutrition problem. So, while it is an important point of entry, the CAG is only one step in engaging the community for nutrition action. It will be necessary to complement the CAGs with other activities to gain a long-term community commitment for improved nutrition.

Through experience with CAGs in Bangladesh MaMoni has found that community engagement increases when the CAGs share results with the community, men’s participation in the community action cycle increases their involvement in maternal and neonatal health, and men and women could work together in CAGs, even in conservative communities. However, they have had challenges in ensuring participation of vulnerable groups, including women who may not have permission to attend, and have struggled to achieve results in areas where health services are unavailable or of poor quality.

The strategy recommends that MaMoni expand the scope of the CAGs in Habiganj to also cover maternal and child nutrition issues. To implement this, trainings and problem identification tools (e.g., picture cards) could be updated to include nutrition, and simple nutrition technical reference materials could be developed as part of a “resource bank” available to the CAGs and the community. The revised training and tools would include information on technical nutrition issues (e.g., optimal feeding practices, causes and consequences of malnutrition) and discuss gender, social support, and community and household members’ roles in achieving good maternal and child nutrition. CAG leaders could also practice facilitating discussions on constraints to achieving optimal nutrition and collaborate to ensure that CAGs represent the entire population, including the most vulnerable.

### *Community-Level Advocacy*

We recommend that MaMoni also conduct advocacy to help stakeholders recognize the nutrition problems affecting their community and to understand nutrition as essential for healthy mothers, newborns, and children. MaMoni should collaborate with people of influence in the community (e.g., imams, union leaders, village doctors, TBAs) and household decision-makers and caregivers (e.g., fathers, mothers, mothers-in-law) to promote promising nutrition practices and increase demand for high quality services in their communities.

**Influential community members and leaders.** MaMoni and partners should reach out to influential community members to facilitate discussions about the consequences of malnutrition in the community and the roles that different people play in ensuring that mothers and children are healthy, including providing emotional support and helping mothers and other caregivers. MaMoni and the influential

community members could work together develop a toolkit of vocation-specific tools, such as *khutbas* (or sermons) for imams; curricula for school-teachers; counseling and job aids for TBAs, village doctors, and other untrained providers; key messages for union leaders; and factsheets for community media. These tools will help them to communicate with community members and encourage community action to improve nutritional status and seek support from health services. Advocacy will be a long-term, ongoing, and iterative process. MaMoni should begin by working with those who have the most influence and contact with community members and household decision-makers and gradually reach out to others.

**Household decision-makers and caregivers.** In addition to actively engaging community leaders, we recommend that MaMoni conduct outreach to household decision-makers and caregivers with information about the importance of nutrition. This includes providing information in locations where people commonly gather, such as reaching men at tea stalls and during *Jumma* prayer on Fridays, reaching caregivers at EPI sessions, and working through market committees and vendors, as well as appropriate community media segments, to raise people’s interest in nutrition as an important issue for the health of women, children, and the community.

### 3.1.2. Conduct Behavior Change Activities

#### *Identifying Key Target Groups, Desired Change, and Materials/Activities*

The social and behavior change plan should be based on formative research that identifies and outlines the target audience, the desired change, key barriers, communication objectives, and specific activities and materials. The program would focus on the highest priority and achievable actions, recognizing that promoting too many actions at once may result in confusion and dilution. Formative research to understand the nutrition situation in Habiganj is recommended to identify and prioritize achievable actions and specific behaviors to promote and the most appropriate messages and methods of promoting nutrition behavior change in Habiganj. For example, in Habiganj, continued breastfeeding, which has a very high prevalence (92 percent), would probably be a lower priority focus than achieving minimum dietary diversity or EBF, which each have low prevalences (33 percent and 54 percent, respectively).<sup>xxxiii</sup>

Though relevant, age-specific messages are an essential part of social and behavior change, messaging is not enough. Interpersonal communication, counseling, negotiation for adoption of behaviors, and involvement of a support team are all essential elements of achieving changes in behavior. **Table 3** provides an illustrative list of desired changes associated with each target group. Change relevant to Habiganj and ways to promote change should be identified for the population in Habiganj through formative research.

**Table 3. Examples of Desired Changes for Specific Target Groups (Illustrative)**

Target Group	Desired Practices
Adolescent girls/pre-pregnant women	<ul style="list-style-type: none"> <li>• Delay marriage.</li> <li>• Ensure healthy timing and spacing of pregnancy, including delayed first pregnancy.</li> <li>• Eat a balanced, varied, and sufficient diet.</li> <li>• Practice good hygiene, including hand washing with soap at key times, safe disposal of feces, and safe preparation and storage of food.</li> <li>• Get dewormed.</li> <li>• Take IFA supplementation.</li> </ul>
Pregnant women	<ul style="list-style-type: none"> <li>• Eat a healthy diet, including more protein and one extra meal per day.</li> <li>• Gain adequate weight.</li> <li>• Take IFA supplementation.</li> <li>• Plan for immediate breastfeeding.</li> <li>• Plan for EBF.</li> </ul>
Husbands/fathers	<ul style="list-style-type: none"> <li>• Support the health and nutritional needs of children and mothers.</li> <li>• Help mothers to have time and support for EBF.</li> </ul>

Target Group	Desired Practices
	<ul style="list-style-type: none"> <li>• Help mothers to have extra food during pregnancy and lactation to support the growth of the child.</li> <li>• Help mothers to receive ANC and have safe delivery.</li> <li>• Ensure mothers and children have early treatment for illness or emergency.</li> <li>• Support mothers to access peer support.</li> <li>• Support/provide a healthy diet for the whole family.</li> </ul>
Mothers-in-law/grandmothers	<ul style="list-style-type: none"> <li>• Support the health and nutritional needs of children and mothers.</li> <li>• Help mothers to have time and support for EBF.</li> <li>• Help mothers to have extra food during pregnancy and lactation to support the growth of the child.</li> <li>• Help mothers to receive ANC and have safe delivery.</li> <li>• Support mothers to access peer support.</li> <li>• Help mother to have adequate rest and a reduced workload.</li> <li>• Support a healthy diet for the whole family.</li> </ul>
Mothers/caregivers of children under 6 months of age	<ul style="list-style-type: none"> <li>• Get post-partum vitamin A supplementation.</li> <li>• Exclusively breastfeed, on demand.</li> <li>• Use correct positioning and attachment.</li> <li>• Maintain milk supply by feeding on demand.</li> <li>• Identify and address common breastfeeding challenges and solutions.</li> <li>• Eat a healthy diet, including two additional meals per day.</li> <li>• Recognize danger signs of child illness and seek care early.</li> <li>• Continue breastfeeding when the child is ill and increase when the child is better.</li> <li>• Begin providing other foods in addition to breast milk at 6 months.</li> </ul>
Mothers/caregivers of children 6–24 months of age	<ul style="list-style-type: none"> <li>• Introduce complementary foods at 6 months of age: <ul style="list-style-type: none"> <li>○ Give an age-appropriate quantity, consistency, and frequency.</li> <li>○ Family foods can be given to the child if mashed and lightly seasoned (children do not need a special meal if its balanced).</li> <li>○ Safely prepare and store food.</li> <li>○ Wash hands before preparing food and feeding the child.</li> <li>○ Give responsive feeding.</li> <li>○ Provide a variety of foods.</li> </ul> </li> <li>• Practice optimal feeding of the sick child: continue feeding, increase liquids, and increase feeding when better.</li> <li>• Take the child for twice-yearly vitamin A supplementation.</li> <li>• Provide your child with iron/micronutrient supplementation (sprinkles).</li> <li>• Recognize danger signs and seek appropriate health care.</li> </ul>

### *Community-Level Social and Behavior Change Approaches*

Below are potential social and behavior change approaches MaMoni could incorporate into its program.

**Household visits.** As part of the MaMoni program, community volunteers, FWAs, and CHWs conduct household visits to provide maternal and neonatal counseling and services. The community volunteers visit monthly while the FWAs and CHWs make bimonthly visits. The FWAs and CHWs may be trained to conduct nutrition screening (see **Section 3.2**). Based on results of nutrition screening, community volunteers may identify mothers, children, and families who are more or less vulnerable and increase or decrease visits based on who is in most need.

We recommend adapting this model and piloting it on a small scale to include age-specific and tailored nutrition counseling in the existing household visits (see age-specific behaviors in **Table 3**) and strengthening the community volunteers' role from one of reinforcing generic messages to also providing counseling to the household. Counseling includes applying what has been learned from the nutrition assessment, talking with the caregiver and household members, negotiating for behavior change, and

providing encouragement. For the maternal and neonatal period, key nutrition actions should be incorporated into regular household visits that are already taking place. Community volunteers should also visit households of children up to 24 months of age to support complementary feeding practices. Job aids should be produced for the community volunteers, and simple, focused communication materials that address barriers to the desired change, such as brochures, pamphlets, and posters, should be developed for households.

In the Bangladesh context, there are several other important decision-makers whose support is needed for a mother to be able to care properly for her child while ensuring that other household work is completed. Counseling should target fathers, mothers-in-law, and other caregivers to discuss the family's role in raising healthy children. While specific care and feeding advice should focus on children under 2 years of age, nutrition should also be placed in the context of achieving health for the whole family (e.g., having an older daughter miss school to help with household chores is not a recommended strategy for helping a mother also care for her younger child).

While community volunteers currently have a reasonable caseload of about 60 households, of which, at any given time, 8–10 will have children under 2, FWAs already are overburdened. This program should integrate nutrition into the work that they already do, especially focused on ways that nutrition supports healthy maternal and neonatal outcomes. If this approach is successful, MaMoni should advocate with the GOB to scale it up in Habiganj and beyond. This may require recruiting additional community volunteers and increasing supervision, (as described in section 3.2.2), and therefore would require financial and policy support from the GOB for this to be included as part of a sustainable, at-scale program.

**Community health groups.** Once community volunteers are successfully conducting household visits, we recommend that MaMoni consider training them to facilitate participatory community health groups (CHGs) that reach a wide range of community members, including fathers, mothers, adolescents, and older women. The CHGs meet regularly and combine learning and action. Sessions involve active discussion of important nutrition-related topics and end with members committing to try a particular action. The group concept involves peer support between sessions to help each other improve behaviors. Members of each CHG are provided with a membership card that is stamped at the completion of the CHG course.

The CHGs are designed to involve various members of a community; however, special sessions with particular target groups, in which sensitive issues may be discussed that are uncomfortable to discuss in mixed groups, could be held as well. Community volunteers should work together to facilitate these groups and, as needed, call on health specialists, such as TBAs, medical officers, and nurses, who can provide technical support to the process, while also forming a stronger link between the community and its health providers. These groups are distinct from the CAGs in that any community member can choose to participate and they focus more on actions that individuals can collectively take to improve their own and their communities' health.

**Peer support networks.** In addition to evidence from other countries, a 2000 study by Haider et al. found that peer support networks in Dhaka increase initiation and duration of EBF, which is currently practiced by just over 50 percent of mothers in Habiganj.<sup>xxxiv</sup> EBF, which requires providing nothing but breast milk to a child, on demand, 8–12 times per day for the first 6 months of life, can be challenging for women who have other responsibilities to juggle. Individual peer support through household visits from other mothers who have successfully exclusively breastfed can help a woman overcome the challenges of EBF. A peer support network for key practices that need reinforcement would complement the larger community-wide effort of CHGs, and household visits can be scheduled in a way that is more flexible for the new mother than a weekly group meeting.

We recommend that women who have successfully breastfed be recruited and trained to provide peer support. They would begin household visits with mothers and other key family members in the last trimester of pregnancy and continue visits throughout the first 6 months of the child's life. The minimum schedule of visits should be determined through program planning, and peers should have flexibility to

visit more, as needed or wanted. As a point of reference, the study in Dhaka, mentioned in the previous paragraph, included two visits at the end of the first trimester, one visit within 48 hours of birth, and fortnightly visits thereafter until the child was 6 months of age. Peers will require a brief training to help them effectively support and encourage other mothers and provide consistent, accurate information. Peer support networks should be done in collaboration with government health services to ensure that messages and information are harmonized. Whether this method could also be used to support complementary feeding (as only 30 percent of children in Sylhet are fed a minimum acceptable diet, according to 2007 DHS) should also be considered.

**Facility-level approaches.** Government health facilities supported by MaMoni offer ANC, post-partum care, immunization services, and sick child visits. During these visits, health service personnel should provide appropriate nutrition services (such as IFA or vitamin A supplementation) and age-appropriate nutrition counseling based on the child's unique needs. We recommend that providers be trained in two-way dialogue and counseling skills and on how to integrate nutrition messages into other services as appropriate. We recommend that the program develop technical reference materials and job aids to assist health care providers in counseling caregivers, based on the results of the formative research. For example, brochures, pamphlets, and reminder cards could be available for caregivers to bring home with them.

To reinforce the nutrition messages, public health facilities should display posters and pamphlets with the information generated during individual counseling and collective learning sessions. By doing this, —saturation” of consistent, coherent information and action is reached. All displayed materials should target a low-literacy audience.

## **3.2. STRENGTHEN NUTRITION SERVICE DELIVERY AT THE FACILITY AND COMMUNITY LEVELS**

The MaMoni Project has worked to strengthen delivery of essential maternal and newborn care services in Habiganj. Building on that experience, the program should integrate into these services high-quality and consistent nutrition services that are accessible to all adolescent girls, non-pregnant married women, PLW, and children under 2 years of age. The nutrition services, provided in facilities and communities, should focus on preventing malnutrition and promoting healthy growth and should provide appropriate counseling and therapeutic treatment for children who become malnourished, particularly those suffering from SAM. Recommendations are provided in the sections below.

### **3.2.1. Community-Level Provision of Nutrition Services**

#### *Nutrition Assessment/Screening, Counseling, and Referral*

One key aspect to improving the nutritional status of women and children is early detection of health problems and appropriate action whenever a problem is detected, whether it is slowed growth, a child's lack of appetite, feeding during illness, or early signs that a child is suffering from acute malnutrition. As part of their routine care at static and outreach clinics, health providers should assess the diet/eating habits of the mother and child through conversation, counsel the mother and other family members who are present on the child's growth (where growth information is available), assess children for acute malnutrition using mid-upper arm circumference (MUAC), and refer acutely malnourished children for specialized care when necessary.

In addition, we recommend that nutrition assessment, counseling, and referral at the household level be initiated. Though FWAs already have a very high workload, as mothers' most frequent and accessible contact with the health system they are well placed to help caregivers overcome feeding problems and recognize when a child needs more specialized care for illness or malnutrition. As part of household visits, MaMoni should pilot a program in which community volunteers and FWAs also conduct dietary assessment of the mother and child, provide appropriate nutrition counseling, screen children for acute malnutrition using MUAC, and refer children with MAM or SAM to MaMoni static and satellite clinics.

Community volunteers can also use the opportunity of household visits to identify women, children, and families who are more vulnerable/at risk and provide increased visits if necessary. Community volunteers and FWAs should initially take on this role in Habiganj, with support from the GOB. If, after testing and modifying the program, it is found to be a successful way to identify, support, and refer children with malnutrition or growth problems, MaMoni could advocate for the GOB to hire enough community volunteers and FWAs to assess, counsel, and refer children on a national scale. If this activity were to go to scale, it would be most effective if there are sufficient staff to conduct assessment at every household. (**Note:** Assessment and referral using MUAC should only take place when treatment for SAM is readily available.)

### *Management of SAM, MAM, and LBW*

Children with SAM require specialized care, which is currently provided only in inpatient care and is not widely available in Bangladesh. As providers are trained to assess nutritional status and refer cases, it is important that there be an adequate place for children with SAM to be referred for treatment. A recent study initiating community-based case management of SAM in Bangladesh was very successful,<sup>xxxv</sup> and the GOB has recently approved guidelines for Community-Based Management of Acute Malnutrition (CMAM). The constraint in implementing CMAM is access to a steady, uninterrupted supply of ready-to-use therapeutic food (RUTF), which is an essential element of the CMAM program. Once access to RUTF is assured, we recommend that MaMoni incorporate CMAM into its health services, providing necessary and effective treatment for SAM. Meanwhile, MaMoni should focus on optimal care of sick children, among other ENA, and initiate programs to manage MAM to reduce the number of children who develop SAM.

LBW babies, born weighing less than 2,500 g, have increased risk of compromised growth and cognitive development, as well as disease and death during infancy and childhood. Improved care of these vulnerable newborns can significantly reduce mortality. Proper nutrition care for LBW babies should be included in delivery services provided by birth attendants in Habiganj.

These services are essential to save lives of newborns, infants, and children in Bangladesh, and it makes sense for MaMoni and the GoB clinics with which they work to provide them because they are already leading health service provision in Habiganj. However, offering management of MAM, SAM, and LBW will probably require an increase in staffing and funding.

### **3.2.2. Recruit Staff**

There are currently many unfilled health provider positions in the GOB health system, and current providers, particularly FWAs, are already overwhelmed. If the quality of services is to be maintained and coverage improved, additional staff will be needed to handle the workload and implement this strategy. MaMoni should work with the government to fill these positions or, similar to what MaMoni and A&T did in Sylhet: create a cadre of CHWs that will take on the responsibilities of an FWA. In addition, to implement comprehensive nutrition services at the community level, more community volunteers will be needed, as they will be a primary part of the community-level social support and behavior change programming. Based on feedback from MaMoni's experiences in Sylhet, around 200 households per volunteer, which at any time means 8–10 households with PLW and children under 2, would be manageable. MaMoni estimates that it would need to hire an additional 120 CHWs, 20 paramedics, 6, nurses and 12 field support officers to implement this strategy.

### **3.2.3. Improve the Quality of Services**

#### *Revise Job Descriptions and Service Protocols*

A key first step in ensuring the quality of services is to clarify expectations with service providers and patients. Job descriptions of each cadre are expected to be revised as one activity of the new NNS, led by the GOB and its Institute for Public Health Nutrition (IPHN), with participation from MaMoni. In these

discussions, MaMoni should advocate for GOB and IPHN to clearly define nutrition services that each health worker will provide and to update protocols for routine service visits to include ENA appropriate to that contact point and stage in the life cycle of the patient. However, in adjusting job descriptions and service protocols, the team will need to ensure that the practitioners are equipped to perform the additional functions, including technical skills, and have the necessary time and resources to fulfill their jobs. Suggested additions to protocols are included in **Annex 6**.

### *Provide Job Aids and References*

To reinforce the information that providers learn in training and help them provide situation-specific counseling and treatment, simple job aids and reference guides should be adapted to include nutrition guidance.

### *Strengthen Supervision Systems/Quality Improvement Tools*

An important part of strengthening the capacity of health service providers is providing clear standards and adequate supervision that helps them to continually strengthen skills. MaMoni has a QI system currently in use based on observations and checklists and has incorporated supportive supervision into its programming. Supervision and QI tools should be updated to include nutrition-appropriate actions, based on service protocols.

### *Train Health Service Providers*

Health service providers receive cadre-specific training in the ENA and on how to effectively incorporate them into their work. **Table 4** lists the skills likely to be required for each cadre of health provider. Some of these skills may already be covered in other trainings, and this training should be designed to complement existing trainings. Informal providers, such as TBAs and village doctors, should also receive an orientation. As these are the most commonly sought providers, it will be important to ensure that they provide accurate information and know when to refer children and mothers for more skilled care, even though they are not GOB providers.

In addition to training, the health service providers will need tools to support their work, such as job aids and IEC materials. Health service professionals should be consulted on the adaption of job descriptions and protocols and provide input as to the type of support they need to fulfill their new roles.

**Table 4. Health Service Provider Skills**

Cadre	Skills Needed
Community volunteer	<ul style="list-style-type: none"> <li>• Nutritional assessment/screening               <ul style="list-style-type: none"> <li>○ MUAC</li> <li>○ Feeding practices</li> <li>○ Interpreting growth cards</li> </ul> </li> <li>• Nutrition/health problem identification and problem-solving skills</li> <li>• Counseling</li> <li>• Group facilitation</li> <li>• IYCF practices</li> <li>• Knowing when referral is necessary</li> </ul>
TBA	<ul style="list-style-type: none"> <li>• Maternal dietary counseling</li> <li>• Maternal nutrition assessment</li> <li>• Knowledge of IFA supplementation and managing side effects</li> <li>• Counseling for immediate EBF with no prelacteal feeds</li> <li>• Correct positioning and attachment</li> </ul>



Cadre	Skills Needed
Village doctor	<ul style="list-style-type: none"> <li>• Nutrition assessment               <ul style="list-style-type: none"> <li>○ MUAC</li> <li>○ Feeding practices</li> </ul> </li> <li>• Identification of when referral is necessary</li> <li>• Optimal feeding of the sick child</li> </ul>
HA	<ul style="list-style-type: none"> <li>• Group facilitation skills (EPI session message delivery)</li> <li>• Knowledge of optimal breastfeeding and complementary feeding practices</li> </ul>
FWA and CHW	<ul style="list-style-type: none"> <li>• Nutrition assessment/screening               <ul style="list-style-type: none"> <li>○ MUAC</li> <li>○ Feeding practices</li> <li>○ Interpreting growth cards</li> </ul> </li> <li>• Counseling skills</li> <li>• Supportive supervision skills for supporting community volunteers</li> <li>• Thorough knowledge of all ENA</li> <li>• Group facilitation skills</li> <li>• CMAM referral</li> </ul>
FWV	<ul style="list-style-type: none"> <li>• Nutrition assessment/screening               <ul style="list-style-type: none"> <li>○ MUAC</li> <li>○ Feeding practices</li> <li>○ Interpreting growth cards</li> </ul> </li> <li>• Counseling skills</li> <li>• Thorough knowledge of all ENAs</li> <li>• Group facilitation skills</li> </ul>
SACMO	<ul style="list-style-type: none"> <li>• Nutrition assessment/screening               <ul style="list-style-type: none"> <li>○ MUAC</li> <li>○ Feeding practices</li> <li>○ Interpreting growth cards</li> </ul> </li> <li>• Counseling skills</li> <li>• Supportive supervision skills</li> <li>• Thorough knowledge of all ENA</li> <li>• Group facilitation skills</li> <li>• Management of SAM</li> </ul>
MO	<ul style="list-style-type: none"> <li>• Nutrition assessment/screening               <ul style="list-style-type: none"> <li>○ MUAC</li> <li>○ Feeding practices</li> <li>○ Interpreting growth cards</li> </ul> </li> <li>• Counseling skills</li> <li>• Supportive supervision skills</li> <li>• Thorough knowledge of all ENA</li> <li>• Group facilitation skills</li> <li>• Management of SAM</li> </ul>
Civil surgeon	<ul style="list-style-type: none"> <li>• Supportive supervision</li> <li>• Advocacy for government support</li> <li>• Managing using data</li> </ul>

**Capacity strengthening strategy.** Training/capacity strengthening must be hands on, draw from the experience of participants and facilitators, and provide saturation of information and experiences with multiple opportunities to learn and share. Rather than a traditional cascade methodology, where training starts at a high level and cascades down to a lower level, a horizontal approach should be used that is carefully targeted to each group.

A two-stage, three-pronged approach to training for nutrition integration should be used. The two stages differ in terms of emphasis. The first stage of training focuses on integrating nutrition and hygiene (the

ENA) into existing actions and activities. The second stage emphasizes multiplying/extending nutrition knowledge and behavior change. The three-pronged approach means that at both stages the training is directed towards three target groups:

- Community volunteers
- Community members more generally (including members of CAGs, adolescents, imams, TBAs, and village doctors)
- Health providers, including decision-makers

**Stage 1** concentrates on integrating nutrition into existing MaMoni actions, particularly through capacity strengthening.

1. **Community volunteers** are expected to develop:

- Detailed nutrition knowledge and skills on ANC, postnatal care, and well-child/household visits
- Understanding of optimal breastfeeding practices
- Understanding of complementary foods and feeding
- In-depth understanding of issues related to gender and other constraints to behavior change
- Insight into nutrition in a context of competing interests
- Skills and experience in counseling
- Nutrition/health problem identification and problem-solving skills
- Organizational skills to facilitate the formation of CHGs

We recommend that community volunteers be trained through an initial 2-day orientation workshop followed by two 1-day workshops that are each composed of four sessions. In between training sessions, participants are expected to apply their new insights in field practice.

2. **CAGs** are expected to strengthen community-level problem identification and action planning for nutrition through the use of technical reference materials and related training that will ensure accurate guidance on community-level nutrition problems.

3. **Health providers** are expected to strengthen their technical nutrition skills for integrating nutrition into services that they provide, and **health sector leadership** are expected to strengthen their supportive supervision capacities. Each cadre will participate in orientation workshops targeted to their responsibilities that provide first-hand experience. The workshop outcomes should include:

- The ability to articulate the importance of including nutrition in health work
- A commitment to supporting community volunteers
- A critical understanding of gender as a crucial component of nutrition practices
- Insight into the effectiveness of dialogue, negotiation, and participatory processes in teaching, learning, and action

Stage 1 concludes with a public celebration of achievements and acknowledgement of community volunteers.

**Stage 2** further develops the knowledge and skills of community volunteers and health providers.

1. **Community volunteers** will prepare for intense work on behavior change with different members of the community through GHGs. This would involve a training process conducted once a week for 10 weeks, the basis of which are HKI/Save the Children materials on integrated mother/child and nutrition education (“Nutrition, Family, Community”).<sup>xxxvi</sup> The training would prepare them to run CHG participatory sessions. These action-oriented “courtyard” sessions encourage ongoing commitment to nutrition as a household and community issue.

2. **Health providers** will participate in a series of three 2-hour sessions that build on Stage 1 sessions that introduced concepts. Stage 2 would focus specifically on how to integrate nutrition information into the provision of other services and focus on strengthening interpersonal communication skills for

conversations between provider and patients. New job aids and protocols developed for the health service providers would be used.

**Training materials.** Some materials for training service providers, community workers, volunteers, and conducting SBCC on the ENA and nutrition exist. These include the CORE Group 2010 training materials on ENA<sup>xxxvii</sup> and the HKI/Save the Children Bangladesh “Nutrition, Family, Community” materials. Any additional materials should be developed or adapted from these and other existing materials, as necessary.

**The trainers.** The training should be facilitated by a group experienced in participatory, action-oriented training. This group will strengthen the capacity of the MaMoni and GOB team to carry out activities, as well as their capacity in participatory, dialogue-based education methods.

### **3.2.4. Incorporating Additional Nutrition Indicators in the Management Information System**

At this time, the only nutrition indicator reported in the Bangladesh health management information system (HMIS) is coverage of vitamin A supplementation in children under 5. The system is being updated by a team from the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) and MEASURE Evaluation to include more indicators, including nutrition indicators. This will be initiated by the GOB in two districts, including Habiganj, in 2013. Potential indicators include prevalence of underweight among children under 5, prevalence of stunting among children under 5, EBF among children under 6 months, proportion of children eating a minimum acceptable diet, coverage of IFA supplementation, and potential measures of maternal nutrition. Measuring and reporting on the selected nutrition indicators will be an important step in making nutrition a priority for health service providers.

MaMoni should incorporate the new nutrition indicators into its management information and reporting systems. In addition, data from simple indicators should be aggregated and shared with the CAGs and the community so they can see their progress in addressing nutrition problems.

### **3.2.5. Strengthen Multisectoral Linkages**

Nutrition is a multisectoral problem with multisectoral solutions. For many years, the NNP operated alone to deal with nutrition issues. Meanwhile, many different organizations throughout Bangladesh have pursued nutrition activities with limited collaboration. However, now is an opportunity to engage all of the stakeholders who can influence nutrition within the health system, other government ministries, and NGOs to ensure that nutrition is addressed in a comprehensive way. Key stakeholders include the MOHFW, including the Directorates of Family Planning and Health, the IPHN, and the IMCI Program; the Ministries of Local Government and Rural Development, Disaster Management and Risk Reduction, Agriculture, and Education; ICDDR,B; BRAC; MEASURE Evaluation; and local NGOs in Habiganj. Before program design, it will be imperative to take a full inventory of nutrition work already underway and of materials and tools that already exist to develop a state of the art program.

## **3.3. PHASED IMPLEMENTATION, WITH PILOT TESTING BEFORE SCALE-UP**

This strategy is very ambitious and comprehensive, requiring changes to a system and increasing staff skills. It is an iterative process. We recommend that integration of nutrition begin in one initial area of Habiganj and occur in phases, with modifications being made progressively. After testing and modifications, nutrition can be integrated on a larger scale, also in phases, based on lessons learned in the initiation.

### **3.3.1. Team**

To implement this strategy, there should be a key contact person at MaMoni to coordinate the integration of nutrition and a team to help that person develop and implement the operational plan. In the short-term the team will need to develop an implementation plan, training materials, job descriptions, job aids, and IEC materials. Technical assistance from a nutrition support mechanism, such as the newly awarded Food and Nutrition Technical Assistance III Project (FANTA III), will be necessary to complete the initial work toward integrating nutrition in MaMoni.

### 3.3.2. Schedule

A specific operational/implementation plan and timeline should be established by the nutrition integration team that will be responsible for the integration process. **Table 5** can be used to help determine the early steps in the process.

**Table 5. Example of Operational/Implementation Plan and Timeline**

ACTION ITEMS		
Action	Responsible	Timeline
Identify integration team		
Select pilot areas		
Conduct workshop to develop operational plan		
Complete operational plan		

### 3.3.3. Financial Resources

Though this strategy builds on the MaMoni Project's current activities, the recommendations increase the services provided and the target groups reached. Therefore there are both up-front one-time costs, such as development and printing of training materials, and long-term costs and sustained investments, such as increasing numbers of field workers and collecting additional data in the HMIS. This strategy is meant to provide a direction for the program to move in as it integrates nutrition, however detailed cost estimates are not possible at this time. **Table 6** provides a summary of three different packages, the relative amount of financial resources that would be needed to implement them, and the expected level of impact.

In the near term as these recommendations are piloted, we recommend that USAID and/or other donors provide additional funds to MaMoni and a nutrition technical assistance mechanism, such as FANTA III,,for the activities related to integrating nutrition. For ongoing long-term costs, such as continued funding of personnel, it will be necessary to advocate with the GOB to provide the additional resources to its health system.

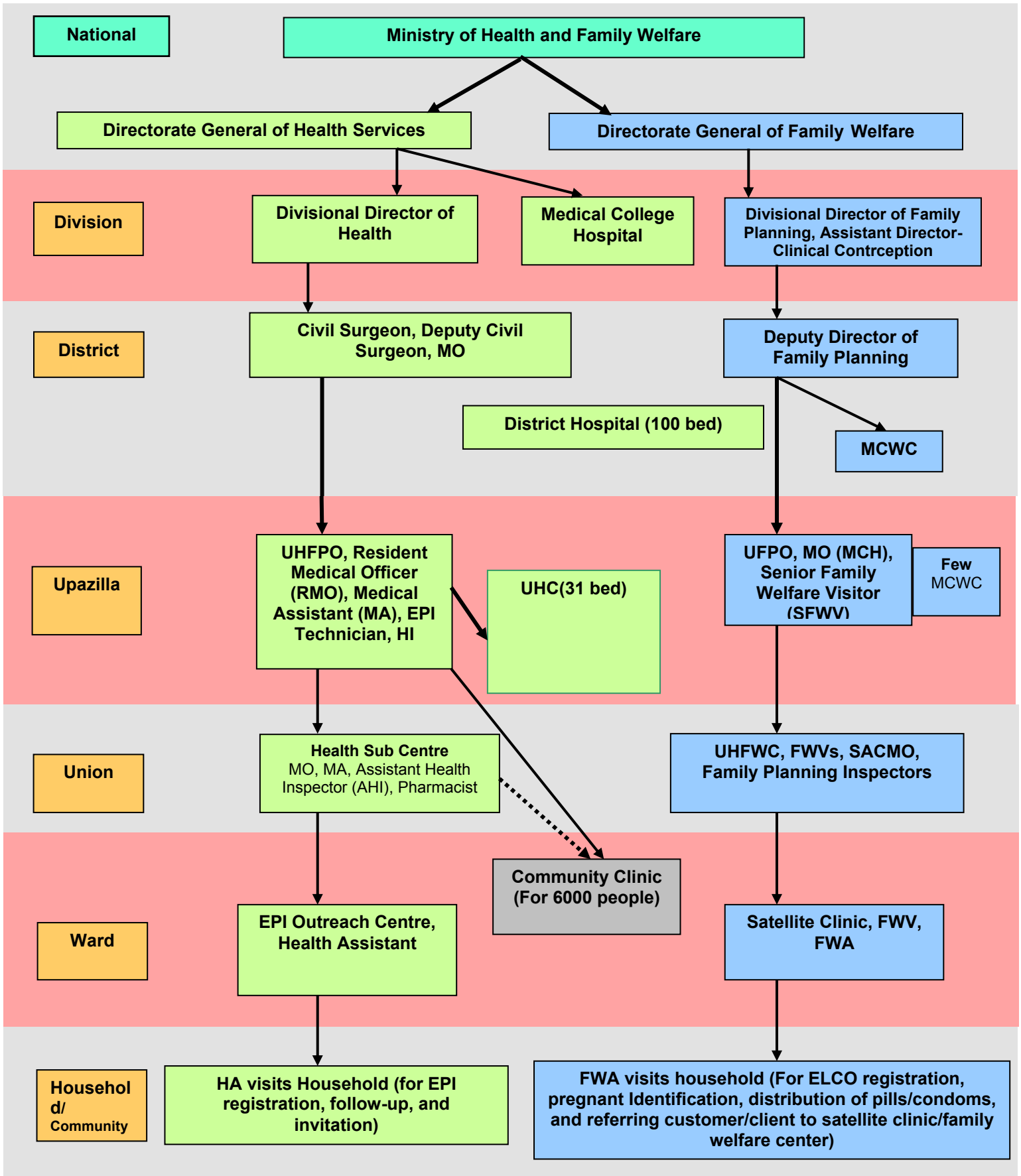
**Table 6. Summary of Nutrition Integration Packages Requiring Different Levels of Financial Resources**

Description of Package	Additional Short-Term Activities	Additional Long-Term Activities	Advantages/Disadvantages	Expected Nutrition Impact
<b>Minimum Financial Resources: Strengthen the Existing MaMoni Services</b>				
<p>Focus on <b>pregnancy and neonatal</b> period:</p> <p>Include nutrition assessment, counseling, and services at all appropriate MaMoni contact points (e.g., ANC, delivery, PNC); referrals; conducting advocacy through existing mechanisms; community mobilization; and QI.</p>	<p>Update ANC, delivery, and PNC protocols.</p> <p>Update job descriptions.</p> <p>Develop job aids for clinic counseling and services.</p> <p>Train staff.</p> <p>Train CAGs/provide CAG toolkits.</p> <p>Develop advocacy toolkits for community leaders.</p> <p>Train supervisors.</p> <p>Develop QI tools.</p> <p>Purchase assessment equipment (e.g., scales, MUAC tapes).</p> <p>Receive technical assistance from FANTA III or another nutrition support mechanism.</p>	<p>Provide ongoing supervision of staff.</p> <p>Continuously strengthen the capacity of staff.</p> <p>Provide continued support to CAGs.</p> <p>Provide ongoing advocacy.</p> <p>Provide ongoing QI.</p> <p>Maintain equipment.</p>	<p><b>Advantages:</b></p> <p>There are no major changes to MaMoni's existing system.</p> <p>This can be achieved with minimal-to-no increase in staff.</p> <p>Most expenses are up-front, The ongoing costs are minimal.</p> <p><b>Disadvantages:</b></p> <p>This only targets part of the nutrition window of opportunity (conception to 2 years of age).</p> <p>The focus is on health services only.</p> <p>Community-, household-, and individual-level knowledge, attitudes, and practices are unlikely to improve.</p> <p>Facility-based services/the focus is mostly on the supply side, with minimal focus on the demand side.</p> <p>There is no treatment for acute malnutrition, just referral (probably to inpatient care).</p>	<p>This is minimal.</p> <p>This would provide a foundation on which to build a more comprehensive program.</p>
<b>Moderate Financial Resources: Strengthen and Expand MaMoni Services, including Community-Level Social Behavior Change</b>				
<p>Focus on <b>conception to 2 years:</b></p>	<p>(In addition to above expenses:)</p>	<p>(In addition to above expenses:)</p>	<p><b>Advantages:</b></p> <p>This reaches the window of</p>	<p>This is moderate.</p> <p>If the community-level social</p>

Description of Package	Additional Short-Term Activities	Additional Long-Term Activities	Advantages/Disadvantages	Expected Nutrition Impact
Include nutrition assessment, counseling, and services at all appropriate health service contact points up to 2 years; referrals; community mobilization and advocacy; conducting social and behavior change activities at the community level; conducting social and behavior change activities at the household level using the current structure (every 2+ months); community MUAC assessment; and QI	Hire additional FWAs/CHWs and some supervisor positions. Recruit additional community volunteers. Conduct formative research. Develop social and behavior change messages and related materials. Update protocols for well-child/immunization and sick-child visits. Develop and disseminate job aids for counseling at the household level. Train CHG leaders. Train and organize peer support networks. Develop CHG curricula and tools.	Support salaries for additional staff. Provide incentives for community volunteers. Provide ongoing supervision of a wider array of activities. Continue providing support and capacity strengthening for staff, CHGs, and leaders. Continue providing supportive supervision to peer support networks.	opportunity. This can be achieved with minimal staff increases. This includes community-level SBCC to address issues related to the underlying nutrition situation. This takes advantage of MaMoni's existing structure to conduct some household visits. <b>Disadvantages:</b> Nutrition services are still mostly facility-based. There are minimal household-level social and behavior change services. Pre-pregnant/ adolescent girls are not reached (and this is a key group in Bangladesh because so many women enter pregnancy already malnourished). There is no treatment for acute malnutrition, just referral (probably to inpatient care).	and behavior change work successfully changes community attitudes and norms, there may be some key individual-level behavior change and uptake of facility-based nutrition services. However, access to nutrition services is still limited.
<b>Higher Financial Resources: Strengthen and Further Expand MaMoni Services, including Household-Level Social and Behavior Change and Community-Level Provision of Nutrition Services</b>				
Focus on <b>adolescence/pre-pregnancy to 2 years:</b> Include nutrition assessment, counseling, and services at all	(In addition to above:) Hire approximately 120 CHWs, 20 paramedics, 6 nurses, and 12 field support officers.	(In addition to above:) Continue supporting staff salaries. Support transport costs for	<b>Advantages:</b> This reaches all of the most vulnerable groups. This is comprehensive,	This is significant. Because this involves a system shift that engages stakeholders at all levels and

Description of Package	Additional Short-Term Activities	Additional Long-Term Activities	Advantages/Disadvantages	Expected Nutrition Impact
<p>appropriate health service contact points up to 2 years.</p> <p>Provide nutrition services at the community level, including SAM and MAM management; referrals; community MUAC assessment; community mobilization and advocacy; and QI.</p> <p>Conduct social and behavior change activities at the community and household levels, the latter using the current structure (every 2+ months).</p> <p>Update the HMIS with additional nutrition indicators.</p>	<p>Develop dietary assessment tools, counseling tools, and job aids for community-based and household-based services.</p> <p>Help the GOB establish outpatient care sites for SAM and establish a community-based referral system.</p> <p>Develop and pilot test programs for the management of MAM.</p> <p>Select new indicators and update the HMIS with data collection protocols</p>	<p>increased community- and household-level work.</p> <p>Continuously collect and analyze HMIS indicators.</p> <p>Maintain a steady, predictable supply of RUTF.</p> <p>Provide ongoing capacity strengthening and supervision of additional staff.</p>	<p>addressing immediate and underlying causes through multiple channels.</p> <p>This addresses the continuum from prevention to treatment.</p> <p>This extends access by reaching communities and households.</p> <p><b>Disadvantages:</b></p> <p>Significant staffing increases are required, which is a long-term funding commitment.</p>	<p>improves access to nutrition services to address the nutrition problem, it is likely to have a significant and sustained impact.</p>

## Annex 1. Simplified Organogram of MOHFW Service Providers





## Annex 2. Training Schedule for Data Collectors

	Sunday, 05 June	Monday, 06 June	Tuesday, 07 June	Wednesday, 08 June	Thursday, 09 June
9:00–9:30	Welcome and overview of training objectives	Reflections on day one		Translation of interview guides	Reflection, question and answer on the week thus far
9:30–10:00	Overview of ENA approach	Interview skills: active listening	Review of interview guides		
10:00–10:30	Overview of the projects: MaMoni and Smiling Sun Franchise Program	Qualitative field note process			Research ethics
10:30–11:00					
11:00–11:15	Tea	Tea	Tea		Tea
11:15–12:00	Understanding qualitative research: key concepts	Summary of interview basics and a sample day	Review of interview guides		Round robin interview practice using interview guides
12:00–12:30		Review of interview guides			
12:30–13:00					
13:00–13:30	Lunch	Lunch	Lunch		Lunch
13:00–14:00					
14:00–14:30	Introduction to semi-structured interviewing	Review of interview guides	Review of interview guides		More interview practice: probing using interview guides
14:30–15:00	What's wrong with the question: types of interview questions				
15:00–15:30					
15:30–15:45					
15:45–16:00	Tea	Tea	Tea		Tea
16:00–16:30	Interview skills: probing	Review of interview guides	Review of interview guides		Preparation for field work
16:30–17:00					

	Sunday, 12 June	Monday, 13 June	Tuesday, 14 June	Wednesday, 15 June	Thursday, 16 June
9:00 – 9:30	Translation of interview guides	Translation of interview guides	Field testing assessment tools	Reflections on field work	Completion of interview guides; final field preparations and logistics
9:30 – 10:00				Review and modification of interview guides based on field work	
10:00 – 10:30				Tea	
10:30 – 11:00				Review and modification of interview guides based on field work	
11:00 – 11:15				Lunch	
11:15 – 12:00				Participant observation	
12:00 – 12:30				Tea	
12:30 – 13:00				Plan and logistics for data collection	
13:00 – 13:30					
13:00 – 14:00					
14:00 – 14:30					
14:30 – 15:00					
15:00 – 15:30					
15:30 – 15:45					
15:45 – 16:00					
16:00 – 16:30					
16:30 – 17:00					

### **Annex 3. Field Work Schedule and Level of Field Staff Interviewed**

---

The data collection team traveled to Habiganj district on June 19–24, 2011, to collect data at MaMoni health facilities and communities served by MaMoni clinics. The team first met with MaMoni district coordinators in Habiganj, Rowshon Jahan (Save the Children), Mohammad Faiz Kawser (Shimantik, an NGO partner), and Mosarouf Hossain (Friends in Village Development Bangladesh [FIVDB], an NGO partner) to discuss the assessment and complete logistics for the week. Data collection took place in MaMoni sites in the following areas: Habiganj Sadar, Nabiganj *upazila*, and Lakhai *upazila*. In Nabiganj Sadar, the team conducted interviews with one district-level informant (an MO) and with *upazila*-level staff who had made themselves available to meet offsite after working hours (one UHFPO and one paramedic). In Nabiganj and Lakhai *upazilas*, the team visited each *upazila*'s UHC and multiple union-level centers (family welfare centers) to conduct interviews with staff. The majority of interviews were completed for MaMoni sites during the 3½ days of field work. The team then returned to Habiganj on August 1, 2011, to complete the remaining interviews, observations, and checklists for MaMoni clinics.

In each *upazila*, the team interviewed the following cadres of providers:

- HA (1)
- FWAs (2)
- FWV s(2)
- Paramedic (1)
- SACMO (1)
- MO (1)

They also interviewed the following supervisors in each *upazila*:

- HI or FPI (1)
- UHFPO or UFPO (1)

Finally, at the community level, they interviewed the following individuals in each *upazila*:

- TBAs (2)
- Female community member who had received services recently from the GOB health system (1)
- Husband of a female community member who had received services recently from the GOB health system (1)
- Community leader (1)

With the addition of the district-level MO, a total of 31 interviews were completed through this process.

## Annex 4. Essential Nutrition Actions<sup>xxxviii</sup>

---

### 1. Promotion of optimal breastfeeding during the first 6 months

- Initiate breastfeeding early (within 1 hour of birth).
- Do not give prelacteal feeds (any food or liquid other than breast milk given in the first 3 days of life).
- Breastfeed exclusively (no other liquids or foods, except ORS, medicines, and vitamin/mineral drops).
- Breastfeed on demand, day and night (8–12 times per day) for an adequate amount of time at each feeding. Empty one breast before offering the other. Offer the second breast after the infant releases the first.
- Practice correct positioning and attachment.

### 2. Promotion of optimal complementary feeding starting at 6 months with continued breastfeeding to 2 years and beyond

- Continue frequent, on-demand breastfeeding.
- Introduce complementary foods at 6 months.
- Increase the quantity of complementary food as the child gets older.
  - 6–8 months: 200 kcal/day
  - 9–11 months: 300 kcal/day
  - 12–23 months: 550 kcal/day
- Increase the frequency of feeding as the child gets older.
  - 6–8 months: 2–3 meals/day
  - 9–23 months: 3–4 meals/day plus 1–2 snacks/day
- Increase food consistency and variety gradually as the child gets older.
- Feed a variety of foods daily, including animal products, fortified foods, and vitamin A-rich fruits and vegetables.
- Practice responsive feeding: feed infants directly, assist older children, encourage children to eat but do not force feed, minimize distractions, and show love by talking to child and making eye contact.

### 3. Promotion of optimal nutritional care of sick and severely malnourished children

- During illness, continue feeding and increase fluids.
  - Under 6 months: increase frequency of breastfeeding
  - 6–24 months: increase fluid intake, including breast milk, and offer food
- After illness, increase feeding until the child gains weight and is growing well.
- For diarrhea, provide zinc supplementation according to national protocol and provide ORS.
- For measles, provide vitamin A treatment, according to national protocol.
- Refer severely malnourished children for treatment (CMAM or inpatient care).

### 4. Prevention of vitamin A deficiency

- Exclusively breastfeed children for 6 months and continue breastfeeding to 2 years and beyond.
- Consume vitamin A-rich foods, including liver; fish; egg; dark yellow and orange fruits (papaya, mango); dark leafy green vegetables; and orange- or yellow-fleshed vegetables (carrots), roots, and tubers.
- Provide high-dose vitamin A supplementation to children 6–59 months of age, according to national protocol.
- Provide post-partum high-dose vitamin A supplementation to women as soon as possible after delivery.

**5. Promotion of adequate intake of iron and folic acid and prevention and control of anemia for women**

- Consume iron-rich foods, especially animal products and fortified foods.
- Provide IFA supplementation to all pregnant women according to national protocol.
- Provide iron supplements to children in areas where there is no malaria.
- Deworm children over 12 months of age, pregnant women after the first trimester, and lactating women according to national protocol.
- Prevent and control malaria, including intermittent preventive treatment of pregnant women in malarial zones and sleeping under long-lasting insecticide-treated bednets.

**6. Promotion of adequate iodine intake**

- Consume iodized salt.

**7. Promotion of optimal nutrition for women**

- Consume more food during pregnancy and lactation.
  - Pregnancy: 285 extra kcal/day (one additional small meal)
  - Lactation: 500 extra kcal/day (two additional small meals)
- Increase protein intake during pregnancy and lactation (e.g., *dal*, beans, legumes, animal source foods [egg, milk], oilseeds).
- Provide IFA supplementation for all pregnant women, according to national protocol.
- Treat and prevent malaria.
- Deworm after the first trimester of pregnancy in areas where parasitic worms are a common cause of anemia.
- Provide post-partum vitamin A supplementation, according to national protocol.
- Promote consumption of iodized salt.

## Annex 5. Key Hygiene Practices for Nutrition

---

### 1. Safe treatment and storage of water at point-of-use

- Treat water to make it safe to drink. Treatment options include:
  - Hypochlorite (chlorine) solution
  - Boiling
  - Solar disinfection (SODIS)
  - Commercial filter
- Store treated water safely in a covered narrow-neck container with a tap, if possible. Pour water into a clean pitcher to serve or use a ladle that hangs on the wall to dispense water. Do not touch the water inside the container with hands.

### 2. Safe preparation and storage of food

- Wash hands before preparing food and feeding children.
- Use clean utensils and dishes.
- Clean food preparation areas with soap and water.
- Cover food with netting or cloth or store food in covered containers to protect it from insects, pests, and other animals.
- Separate raw and cooked food.
- Eat food within 6 hours of preparation.
- Use treated water to wash raw foods.
- Cook food thoroughly.

### 3. Wash hands using correct technique at critical times

- Hand washing with **soap** is the best way to prevent the spread of infection from person to person.
- Just rinsing hands is not enough. You have to use soap or ash every time you wash your hands.
- Wash hands under poured or flowing water. This removes the dirt and germs. A wash basin in which many people wash their hands in the same water does not prevent infection.
- Wash your hands **before** handling, preparing, or eating food and before feeding someone or giving medicines, and wash hands often during food preparation.
- Wash your hands **after** going to the toilet, cleaning a person who has defecated, blowing your nose, coughing, sneezing, or handling an animal or animal waste
- Wash your hands both before and after tending to someone who is sick.

### 4. Sanitary disposal of human feces

- Always use a latrine.
- Dispose of the infant/child's feces in a latrine.
- Wash hands after going to the toilet, changing a child's diaper, or cleaning a person who has defecated.

## Annex 6. Suggested Nutrition Actions to Include in Existing Service Protocols for Health Workers

Service	Target group	Action(s)	Any present family members, especially decision-makers	Tools to be developed that will support this
Adolescent counseling	Adolescent girls (married and unmarried) and their families	<p>Assess nutritional status:</p> <ul style="list-style-type: none"> <li>• Discuss diet</li> <li>• Test hemoglobin</li> <li>• Measure weight</li> </ul> <p>Counsel and negotiate for:</p> <ul style="list-style-type: none"> <li>• Improved diet: discuss what foods she is eating and how much and discuss ways that she can eat a balanced diet with enough calories and variety</li> <li>• Improved self-care</li> <li>• Delay marriage</li> <li>• Delay pregnancy</li> </ul> <p>Provide brochures designed for low-literacy audiences, based on the counseling that took place at the session.</p>		<ul style="list-style-type: none"> <li>• Brochures designed for low-literacy audiences, based on the counseling that took place at the session</li> <li>• Counseling guides</li> </ul>
Newly married counseling	Newly married couples and families	<p>Assess nutritional status:</p> <ul style="list-style-type: none"> <li>• Discuss diet</li> <li>• Test hemoglobin</li> <li>• Measure weight</li> </ul> <p>Counsel and negotiate for:</p> <ul style="list-style-type: none"> <li>• Improved diet: discuss what foods she is eating and how much and discuss ways that she can eat a balanced diet with enough calories and variety <ul style="list-style-type: none"> <li>○ Nutrition to stay health in marriage</li> <li>○ Nutrition to be healthy in pregnancy</li> </ul> </li> <li>• Improved self-care</li> <li>• Delay pregnancy</li> <li>• Healthy timing and spacing of pregnancies</li> </ul>		<ul style="list-style-type: none"> <li>• Brochures designed for low-literacy audiences, based on the counseling that took place at the session</li> <li>• Counseling guides</li> </ul>
ANC at home or in clinic	Pregnant women	<p>Review records of any previous visits and adjust this visit accordingly</p> <p>Assess nutritional status:</p> <ul style="list-style-type: none"> <li>• Discuss diet</li> <li>• Test hemoglobin</li> <li>• Measure weight</li> <li>• Measure MUAC</li> </ul> <p>Provide medications and supplements:</p> <ul style="list-style-type: none"> <li>• IFA for all pregnant women</li> <li>• Deworming for women in second or third trimester</li> </ul>	<p>Counsel and negotiate for:</p> <ul style="list-style-type: none"> <li>• Providing support to woman to eat more and a better quality diet</li> <li>• Support for helping the woman to rest more</li> </ul>	<ul style="list-style-type: none"> <li>• Clear protocols for ANC services</li> <li>• Job aids targeted to different providers with specific guidance based on which ANC visit and the stage of pregnancy</li> <li>• IEC materials for</li> </ul>

Service	Target group	Action(s)	Any present family members, especially decision-makers	Tools to be developed that will support this
		<ul style="list-style-type: none"> <li>• In malaria zones, intermittent preventive treatment</li> <li>• Treatment of illness, such as malaria</li> </ul> <p>Counsel and negotiate for improved:</p> <ul style="list-style-type: none"> <li>• Diet: discuss what foods she is eating and how much and discuss ways that she can                             <ul style="list-style-type: none"> <li>○ Eat more food each day (determine local equivalent of 285 kcal)</li> <li>○ Eat a variety of foods, including animal source foods and fruits and vegetables</li> <li>○ Increased consumption of locally available iron- and vitamin A-rich foods</li> <li>○ Consume iodized salt</li> </ul> </li> <li>• Self-care: rest more, as possible</li> <li>• Compliance with IFA supplements, as necessary: suggestions for coping with side effects</li> <li>• Attendance at ANC</li> </ul> <p>Depending on the need for counseling on maternal diet, and the stage of pregnancy, begin counseling on (note: job aids would specify which is important at which stage):</p> <ul style="list-style-type: none"> <li>• Initiating breastfeeding immediately (within 1 hour)</li> <li>• Avoiding prelacteal feeds</li> <li>• Correct positioning and attachment through demonstration</li> <li>• EBF, i.e., providing nothing but breast milk for the first 6 months of life</li> <li>• How to maintain good milk supply</li> </ul> <p>Provide brochures designed for low-literacy audiences, based on the counseling that took place at the session.</p> <p>Record notes for follow-up visits.</p>	<ul style="list-style-type: none"> <li>• Support for seeking health care as needed</li> <li>• Finding ways to support new mother after baby arrives so she can care for the child</li> </ul>	<p>pregnant women to take home for reinforcement</p>
Delivery at home or in health facility	Mother and newborn child	<p>Assess nutritional status:</p> <ul style="list-style-type: none"> <li>• Weigh and measure baby (if facility-based delivery and/or scale is available)</li> <li>• MUAC of mother</li> <li>• Discuss mother's diet</li> </ul> <p>Provide medications and supplements:</p> <ul style="list-style-type: none"> <li>• IFA for mother, as needed according to national policy</li> <li>• Post-partum vitamin A supplementation: one high dose within 6 weeks postpartum</li> </ul> <p>Counsel, negotiation, and support for:</p>	Counsel and negotiate for mother's time to exclusively breastfeed	<ul style="list-style-type: none"> <li>• Clear protocols for delivery services</li> <li>• Counseling job aid for delivery</li> <li>• IEC materials for pregnant women to take home for reinforcement</li> </ul>



Service	Target group	Action(s)	Any present family members, especially decision-makers	Tools to be developed that will support this
		<ul style="list-style-type: none"> <li>• Initiating breastfeeding immediately (within 1 hour)</li> <li>• Correct positioning and attachment</li> <li>• Avoiding prelacteal feeds</li> <li>• Breastfeeding on demand, 8–12 times per day</li> <li>• Emptying one breast completely before offering the other breast</li> <li>• EBF for 6 months</li> <li>• Maternal diet: discuss what foods she is eating and how much and discuss ways that she can                             <ul style="list-style-type: none"> <li>○ Eat more food each day (determine local equivalent of 500 kcal)</li> <li>○ Eat a variety of foods, including animal source foods and fruits and vegetables</li> <li>○ Increased consumption of locally available iron- and vitamin A-rich foods</li> <li>○ Consume iodized salt</li> </ul> </li> <li>• Maternal compliance with IFA supplements, as necessary: suggestions for coping with side effects</li> <li>• Explanation of how to maintain good milk supply</li> </ul> <p>Provide brochures designed for low-literacy audiences, based on the counseling that took place at the session.</p>		
Postpartum Care: at home or in health facility	Mother and newborn	<p>Review record from any previous post-partum visits and adapt session accordingly (e.g., if there was a problem with correct positioning and attachment, follow-up to be sure it's okay now).</p> <p>Assess nutritional status:</p> <ul style="list-style-type: none"> <li>• Discuss maternal diet</li> <li>• Weigh baby if not weighed at birth</li> <li>• Measure weight</li> <li>• Measure MUAC of mother</li> </ul> <p>If baby weighs less than 2,500 g:</p> <ul style="list-style-type: none"> <li>• Feed every 30 minutes to 1 hour</li> <li>• Note: care of LBW baby requires intensive support</li> </ul> <p>Provide medications and supplements, as necessary:</p> <ul style="list-style-type: none"> <li>• IFA as needed, according to national policy</li> <li>• High-dose vitamin A supplementation for mother: one time within first 6 weeks of delivery</li> </ul>	<p>Counsel and negotiate for:</p> <ul style="list-style-type: none"> <li>• Support to mother to care for herself and child</li> <li>• Rest and extra high-quality food for mother</li> <li>• Feed child only breastmilk</li> <li>• If LBW baby, intensive support for mother and child because the feeding is almost constant – support for someone</li> </ul>	<ul style="list-style-type: none"> <li>• Clear protocols for postpartum visits</li> <li>• Job aid with specific guidance based on each postpartum visit</li> <li>• IEC materials for pregnant women to take home for reinforcement</li> </ul>

Service	Target group	Action(s)	Any present family members, especially decision-makers	Tools to be developed that will support this
		<p>Counsel, negotiate and support for :</p> <ul style="list-style-type: none"> <li>• Correct positioning and attachment</li> <li>• EBF for 6 months</li> <li>• Breastfeeding on-demand, 8-12 times/day</li> <li>• Empty one breast completely before offering the other breast</li> <li>• Assessing milk supply</li> <li>• Maintaining milk supply</li> <li>• Maternal diet: discuss what foods she is eating and how much and discuss ways that she can:                             <ul style="list-style-type: none"> <li>○ Eat more food each day (determine local equivalent of 500 kcal)</li> <li>○ Eat a variety of foods, including animal source foods and fruits and vegetables</li> <li>○ Increased consumption of locally available iron- and vitamin A-rich foods</li> <li>○ Consume iodized salt</li> </ul> </li> <li>• Maternal compliance with IFA supplements, as necessary: suggestions for coping with side effects</li> </ul> <p>Answer any questions that the new mother and/or her family have.</p> <p>Provide brochures designed for low-literacy audiences, based on the counseling that took place at the session.</p>	<p>to take on mother's chores</p>	
<p>Well-child visit/ Immunization/ Growth promotion under 6 months</p>	<p>Infant under 6 months</p>	<p>Assess nutritional status:</p> <ul style="list-style-type: none"> <li>• Measure weight and length of child</li> <li>• Discuss what is being fed to child</li> </ul> <p>Counsel, negotiation, and support for:</p> <ul style="list-style-type: none"> <li>• Discuss any challenges/problems with breastfeeding</li> <li>• EBF for 6 months</li> <li>• Discuss introduction of complementary foods at 6 months                             <ul style="list-style-type: none"> <li>○ Continue breastfeeding</li> <li>○ Age appropriate consistency and quantity</li> </ul> </li> <li>• Hygiene practices</li> <li>• Maternal diet: discuss what foods she is eating and how much and discuss ways that she can:                             <ul style="list-style-type: none"> <li>○ Eat more food each day (determine local equivalent of 500 kcal)</li> <li>○ Eat a variety of foods, including animal source foods and fruits and vegetables</li> <li>○ Increased consumption of locally available iron- and vitamin A-rich foods</li> </ul> </li> </ul>	<p>Counsel and negotiate for mother's time to exclusively breastfeed</p>	<ul style="list-style-type: none"> <li>• Protocols</li> <li>• Job aids</li> <li>• Brochures for family to take home</li> </ul>

Service	Target group	Action(s)	Any present family members, especially decision-makers	Tools to be developed that will support this
		<ul style="list-style-type: none"> <li>○ Consume iodized salt</li> <li>● Maternal compliance with IFA supplements, as necessary: suggestions for coping with side effects</li> </ul> <p>Provide brochures designed for low-literacy audiences, based on the counseling that took place at the session</p>		
Well-child visit/ Immunization/ Growth promotion 6–24 months	Child 6–24 months	<p>Assess nutritional status:</p> <ul style="list-style-type: none"> <li>● Measure weight and length/height of child</li> <li>● Measure MUAC</li> <li>● Discuss what is being fed to child</li> </ul> <ul style="list-style-type: none"> <li>● Provide vitamin A supplementation to children according to national policy</li> <li>● Provide iron supplementation to children in non-malaria areas, according to national policy</li> </ul> <p>Counsel, negotiation, and support for:</p> <ul style="list-style-type: none"> <li>● Discuss any challenges/problems with breastfeeding</li> <li>● EBF for 6 months</li> <li>● Discuss introduction of complementary foods at 6 months:                             <ul style="list-style-type: none"> <li>○ Continue breastfeeding</li> <li>○ Age appropriate consistency and quantity</li> <li>○ Responsive feeding</li> </ul> </li> <li>● Food safety and hygiene practices:                             <ul style="list-style-type: none"> <li>○ Safe preparation and storage</li> <li>○ Hand washing</li> </ul> </li> <li>● Maternal diet: discuss what foods she is eating and how much and discuss ways that she can:                             <ul style="list-style-type: none"> <li>○ Eat more food each day (determine local equivalent of 500 kcal)</li> <li>○ Eat a variety of foods, including animal source foods and fruits and vegetables</li> <li>○ Increased consumption of locally available iron- and vitamin A-rich foods</li> <li>○ Consume iodized salt</li> </ul> </li> </ul> <p>Provide brochures designed for low-literacy audiences, based on the counseling that took place at the session.</p>	Counsel and negotiate for support to mother to adequately feed and care for child	<ul style="list-style-type: none"> <li>● Protocols</li> <li>● Job aids according to age of child</li> <li>● Brochures for family to take home</li> </ul>
Sick child visits	Mother and newborn child	<p>Assess nutritional status.</p> <ul style="list-style-type: none"> <li>● Measure weight and length/height of child</li> <li>● Measure MUAC</li> <li>● Discuss foods/liquids being fed to child</li> </ul>	Counsel and negotiate for mother's time to exclusively breastfeed and care for child	<ul style="list-style-type: none"> <li>● Clear protocols for delivery services</li> <li>● Counseling job aid for delivery</li> </ul>

Service	Target group	Action(s)	Any present family members, especially decision-makers	Tools to be developed that will support this
		Provide treatment: <ul style="list-style-type: none"> <li>• ORS for diarrhea</li> <li>• Zinc treatment for diarrhea</li> <li>• Vitamin A for measles</li> <li>• Deworming as necessary</li> <li>• Referral or therapeutic care for children with SAM</li> <li>• Referral as necessary for other conditions</li> </ul>		<ul style="list-style-type: none"> <li>• IEC materials for pregnant women to take home for reinforcement</li> </ul>
		Counsel, negotiation, and support for: <ul style="list-style-type: none"> <li>• Children under 6 months:                             <ul style="list-style-type: none"> <li>○ Continued breastfeeding during illness</li> <li>○ Offer breast milk more often after illness</li> <li>○ Do not offer food</li> </ul> </li> <li>• Children over 6 months                             <ul style="list-style-type: none"> <li>○ Increase fluids</li> <li>○ Continue to offer food</li> <li>○ Offer extra food after illness</li> </ul> </li> <li>• Maternal diet: discuss what foods she is eating and how much and discuss ways that she can:                             <ul style="list-style-type: none"> <li>○ Eat more food each day (determine local equivalent of 500 kcal)</li> <li>○ Eat a variety of foods, including animal source foods and fruits and vegetables</li> <li>○ Increased consumption of locally available iron- and vitamin A-rich foods</li> <li>○ Consume iodized salt</li> </ul> </li> <li>• Maternal compliance with IFA supplements, as necessary: suggestions for coping with side effects</li> <li>• Explanation of how to maintain good milk supply</li> </ul>		
		<ul style="list-style-type: none"> <li>• Schedule follow-up</li> <li>• Notify community volunteer of need for follow-up at household</li> </ul>		

## Annex 7. Summary Table for Integrating ENA into MaMoni

Service delivery	MaMoni component	Government component	What is required for ENA
<b>Satellite clinic</b>	<p>Strengthen satellite clinic</p> <p>Ensure that :</p> <ul style="list-style-type: none"> <li>• Clinic takes place</li> <li>• Family welfare volunteer registers are filled out</li> <li>• Counseling happens</li> <li>• Pre-eclampsia detection using diagnostic strips is done</li> <li>• Blood hemoglobin test using lancet and blot is done</li> </ul>	<p>A regular government service to screen mothers for anemia and provide IFA supplementation</p> <p>To screen SAM and sick child for referral to the GOB clinics (not yet part of GOB system in Habiganj, but to be rolled out in NNS)</p>	<p>Strengthen: Nutrition counseling (particularly maternal nutrition, EBF [third trimester]), and complementary feeding (at third immunization) maternal anemia prevention, identification and treatment</p> <p>New intervention: An opportunity to bring infants (6–24 months) for screening of MAM/SAM, integrate nutrition into all services, screening for SAM &amp; sick child before GOB brings in</p> <p>Task: Assist NNS director to ensure circular for all <i>upazila</i> of Habiganj adding all new responsibilities</p>
<b>Static clinic</b>	<p>Strengthen clinic services: Ensure ANC</p> <ul style="list-style-type: none"> <li>• Counseling happens</li> <li>• Pre-eclampsia detection using diagnostic strips is done</li> <li>• Blood hemoglobin test using lancet and blot is done</li> </ul>	<p>Conduct training of service providers on nutrition assessment/screening, nutrition counseling for IYCF and maternal nutrition, provision of supplements</p> <p>Equipped facility to treat SAM and child illness</p>	<p>Strengthen: nutrition assessment/screening, nutrition counseling for IYCF and maternal nutrition, provision of supplements</p> <p>New intervention: MAM and SAM management, LBW management, integrate nutrition into all services</p> <p>Task: Assist NNS director to ensure circular for all <i>upazila</i> of Habiganj adding all new responsibilities</p>
<b>Microplanning</b>	<p>Through microplanning meetings:</p> <ul style="list-style-type: none"> <li>• MaMoni volunteers bring information about new pregnancies, new deliveries, mothers who did not receive ANC</li> <li>• Record information in FWA registers</li> <li>• Develop action plans for problems in that unit/ward</li> </ul>	<p>FWAs and HAs participate in microplanning meetings and:</p> <ul style="list-style-type: none"> <li>• Update their register</li> <li>• Follow-up mothers and children</li> <li>• Instruct volunteers with appropriate suggestions for specific problems</li> </ul>	<p>Strengthening: Information about new deliveries can be used to strengthen postnatal care counseling on breastfeeding and ensure early initiation of breastfeeding</p> <p>New information: MUAC may be used to refer children for treatment and names give to HA/FWA for follow-up after micro-planning meeting</p> <p>Task: Develop ENA brochure for micro planning meeting</p>

Service delivery	MaMoni component	Government component	What is required for ENA
<b>Community Action Groups</b>	Train CAGs in MCHN issues	CAGs are community run, and identify own problems and solutions.	<p>New information: ENA and hygiene can be topics for the CAGs as well; provide training and technical reference materials</p> <p>Task: Assist MaMoni to incorporate ENA and hygiene as a topics for the CAGs members</p>
<b>Advocacy meetings</b>	With school teachers, religious leaders, village doctors, elected leaders on MCHN specially on IYCF	<ul style="list-style-type: none"> <li>• Conduct advocacy meeting led by the Family Planning Inspector</li> <li>• Incorporate ENA information for the clinical contraception management team member</li> </ul>	<p>New information: causes and consequences of malnutrition</p> <p>New intervention: develop materials for these people to conduct advocacy (e.g., khutbas, school curricula)</p> <p>Task: Assist MaMoni with all advocacy meeting guideline school teachers, religious leaders, village doctors, elected leaders on ENA and IYCF as a first phase in collaboration with A&amp;T</p>
<b>Technical training/ Capacity strengthening of health service providers</b>	Develop trainings materials, job aids, and pool of trainers	Provide cascade trainings on MCHN and IYCF using A&T curriculum which is being endorse by IPHN and IYCF working committee	<p>Strengthen: trainings to be more participatory and practical, minimize cascade</p> <p>Include new information: IYCF if necessary, maternal nutrition, hygiene practices, counseling skills</p> <p>Tasks: Support revision of protocols/job descriptions</p>
<b>Supervisory visits</b>	<ul style="list-style-type: none"> <li>• Develop supervisory tools</li> <li>• Plan for supervisory visit</li> </ul>	Conduct supervisory visit using the developed tools to provide on-the-job orientation on nutrition	<p>New information: nutrition interventions appropriate for each type of service (e.g., ANC, delivery, postnatal care, well-baby)</p> <p>Task: support in the development of ENA related supervision tools</p>
<b>Referral network</b>	<ul style="list-style-type: none"> <li>• Introduce referral slip for sick child and SAM child</li> <li>• Strengthen referral linkage</li> </ul>	Make linkages with facility to ensure quality service for each referral cases	<p>Strengthen: referral for sick children, including based on nutrition assessment, referral for MAM, SAM, LBW, referral for routine nutrition care</p> <p>Task: Assist GOB to ensure referral slip for sick child and child with SAM in place</p>

Service delivery	MaMoni component	Government component	What is required for ENA
<b>Strengthening of facilities</b>	Assessing facilities, small scale renovation, provision of equipment, supplies	Operates, staffs, and maintains facilities	<p>Strengthen: ensure supply of nutrition-related items: IFA, vitamin A, MoniMix, zinc, ORS, calcium; ensure equipped with scales, height boards, MUAC tapes, equipment to test for anemia; make sure all staff have access to updated protocols, job aids, technical information</p> <p>Task: Ensure financial allocation and approval from GOB authority to equip the facilities</p>
<b>QI</b>	<p>Monitor QI indicators</p> <p>Make management decisions based on indicators</p>	<ul style="list-style-type: none"> <li>Steps to incorporate the nutrition related indicator into the existing register</li> <li>Send circular to all relevant authority on the revised roles and to use data for decision making process</li> </ul>	<p>New information: include nutrition indicators, collect data on ENA, use data for decision making process to improve ENA performance</p> <p>Task: Advocacy work to get adequate support on time from GOB</p>
<b>Social and behavior change</b>	SBCC at individual, family, group and mass level for demand generation, MCHN, and add ENA	Use of CC management group to follow-up CAG responsibilities of SBCC related activities on ENA	<p>Strengthen: from behavior change communication to SBCC, including stronger focus on enabling environment and role of community, formative research, peer support</p> <p>New information: All ENA and hygiene included</p> <p>Task: Assist MaMoni to incorporate ENA in their regular advocacy strategy</p>
<b>Household visits</b>	The MCHIP MaMoni intervention is targeted to FP eligible couples, pregnant women and postpartum mothers up to 6 months after delivery.	Distribution of family planning commodities to ELCOs, Vitamin A distribution during post natal mother	<p>Strengthen: Counseling on exclusive breast feeding and complementary feeding ensure family support to mother and caregiver to ensure quality IYCF</p> <p>New information: All ENA and hygiene included.</p> <p>Task: Assist MaMoni to have GOB circular for GOB front line player to conduct house hold visit</p>

## References

---

1. Rasheed, Sabrina, Rukhsana Haider, Nazmul Hassan, Helena Pachón, Sanjeeda Islam, Chowdhury S.B. Jalal, and Tina Sanghvi. 2011. Why does nutrition deteriorate rapidly among children under 2 years of age? Using qualitative methods to understand community perspectives on complementary feeding practices in Bangladesh. *Food and Nutrition Bulletin* 32(3): 192–199.
2. Kimmons, Joel E., Kathryn G. Dewey, Emdadul Haque, J. Chakraborty, Saskia J.M. Osendarp, and Kenneth H. Brown. 2004. Behavior-change trials to assess the feasibility of improving complementary feeding practices and micronutrient intake of infants in rural Banglades. *Food and Nutrition Bulletin* 25(3): 228–238.
3. Jahan, Rowshon. Accessed November 9, 2011. —Engaging Communities to Help Mothers and Newborns: MaMoni Experience from Bangladesh.” Presentation at the Global Maternal Health Conference in New Delhi.” <http://www.mchip.net/node/183>.
4. Measure DHS. 2009. *Bangladesh 2007 Demographic and Health Survey*. Calverton, MD: ICF Macro. CORE Group Nutrition Working Group. 2010. *Nutrition Program Design Assistant: A Tool for Program Planners*. Washington, DC: CORE Group.
5. Guyon, A.B., and V.J. Quinn. 2011. *Booklet on Key Essential Nutrition Actions Messages*. Washington, DC: CORE Group.
6. Guyon, A.B., and V.J. Quinn VJ. 2011. *Essential Nutrition Actions Framework Training Guide for Health Workers*. Washington, DC: CORE Group.
7. Guyon, A.B., and V.J. Quinn. *Essential Nutrition Action Framework Training Guide for Community Volunteers*. Washington, DC: CORE Group.
8. von Kotze, A. 2008. *Nutrition, Family, Community: Choroibhati*. Dhaka: HKI/Bangladesh and Save the Children USA.
9. Haider, Rukhsana, Ann Ashworth, Iqbal Kabir, and Sharon R.A. Huttley. 2000. Effect of Community-based peer counselors on exclusive breastfeeding practices in Dhaka, Bangladesh: a randomized, controlled trial. *Lancet* 356:9,242:1,643–1,647..



## Endnotes

---

- <sup>i</sup> HKI and James P Grant School of Public Health (JPGSPH). 2011. State of food security and nutrition in Bangladesh: Summary Statistics 2010. Dhaka, Bangladesh: HKI and JPGSPH.
- <sup>ii</sup> Black, R.E., L.H. Allen, Z.A. Bhutta, L.E. Caulfield, M. de Onis, et al. 2008. Maternal and child undernutrition: Global and regional exposures and health consequences. *Lancet* 371:243–260.
- <sup>iii</sup> Barker, David. 2011. The Barker Theory: The Science. <http://www.thebarkerttheory.org/science.php> (Accessed 17 February 2012).
- <sup>iv</sup> UNICEF. 1998. The state of the world's children 1998. <http://www.unicef.org/sowc98/>.
- <sup>v</sup> Save the Children. 2011. Health Worker's Reach Index. [http://www.savethechildren.org.uk/en/54\\_16352.htm](http://www.savethechildren.org.uk/en/54_16352.htm).
- <sup>vi</sup> Mridha, M.K., I. Anwar, and M. Koblinsky. 2009/ Public-sector maternal health programmes and services for rural Bangladesh. *Journal of Health Population and Nutrition* 27(2):124–138.
- <sup>vii</sup> HKI and JPGSPH. 2011. *State of food security and nutrition in Bangladesh: Summary Statistics 2010*. Dhaka, Bangladesh.: HKI and JPGSPH.
- <sup>viii</sup> Scaling Up Nutrition Road Map Task Team. 2010. A Road Map for Scaling Up Nutrition (SUN). [http://www.unscn.org/files/Announcements/Other\\_announcements/FINAL\\_SUN\\_Road\\_Map\\_FINAL\\_dn.pdf](http://www.unscn.org/files/Announcements/Other_announcements/FINAL_SUN_Road_Map_FINAL_dn.pdf).
- <sup>ix</sup> FANTA-2 was formerly managed by AED, therefore AED's Institutional Review Board was consulted for this assessment. However, FHI 360 acquired AED's programs, expertise, and assets in July 2011, and FANTA-2 is now managed by FHI 360.
- <sup>x</sup> Measure DHS. 2009. *Bangladesh 2007 Demographic and Health Surveyt*. Calverton, MD: ICF Macro.
- <sup>xi</sup> Bhutta, Z.A., T. Ahmed, R.E. Black, S. Cousens, K. Dewey, et al. 2008. What works? Interventions for maternal and child undernutrition and survival. *Lancet* 371:417–40.
- <sup>xii</sup> Shrimpton, R., C.G. Victora, M. de Onis, R.C. Lima, M. Blössner, et al. 2001. Worldwide timing of growth faltering: implications for nutrition interventions. *Pediatrics* 107:75–82.
- <sup>xiii</sup> Victora, C.G., M. de Onis, P.C. Hallal, M. Blössner, and R. Shrimpton. 2010. Worldwide timing of growth faltering: revisiting implications for interventions. *Pediatrics* 125(3):e473–e481.
- <sup>xiv</sup> Zaman, S., R.N. Ashraf, and J. Martines. 2008. Training in complementary feeding counselling of healthcare workers and its influence on maternal behaviors and child growth: A cluster-randomized controlled trial in Lahore, Pakistan. *Journal of Health Population and Nutrition* 26(2):210–222.
- <sup>xv</sup> Bhandari, N., S. Mazumder, R. Bahl, J. Martines, R.E. Black, et al. 2004. An educational intervention to promote appropriate complementary feeding practices and physical growth in rural Haryana, India. *Journal of Nutrition* 134(9):2,342–2,348.
- <sup>xvi</sup> Penny, M.E., H.M. Creed-Kanashiro, R.C. Robert, M. Rocio Narro, L.E. Caulfield, et al. 2005. Effectiveness of an educational intervention delivered through the health services to improve nutrition in young children: A cluster-randomised controlled trial. *Lancet* 365:1,863–1,872.
- <sup>xvii</sup> Arifeen, S.E., J. Bryce, E. Gouws, A.H. Baqui, R.E. Black, et al. 2005. Quality of care for under-fives in first-level health facilities in one district of Bangladesh. *Bulletin of the World Health Organization* 83(4):260–267.
- <sup>xviii</sup> Pelto, G.H., I. Santos, H. Goncalves, C. Victora, J. Martines, et al. 2004. Nutrition counseling training changes physician behavior and improves caregiver knowledge acquisition. *Journal of Nutrition* 134:357–362.
- <sup>xix</sup> UNICEF. 2011. State of the world's children 2009. <http://www.unicef.org/sowc09/>.
- <sup>xx</sup> UNICEF. 2011. Newborn health. <http://www.unicef.org/health/newbornhealth.html> (Accessed 17 February 2012).
- <sup>xxi</sup> Ahmed, S.M., M.A. Hossain, A.M. Raja Chowdhury, and A.U. Bhuiya. 2011. The health workforce crisis in Bangladesh: Shortage, inappropriate skill mix and inequitable distribution. *Human Resources for Health* 9(3). <http://www.human-resources-health.com/content/9/1/3> (Accessed 17 February 2012).
- <sup>xxii</sup> Shrimpton et al. 2001.
- <sup>xxiii</sup> Schroeder, D.G., et al. 1995. Age Differences in the Impact of Nutritional Supplementation on Growth. *Journal of Nutrition* Supplement: The INCAP Follow-Up Study. *Journal of Nutrition* 125(4Suppl): 1051S–1059S; Letter et al. 1990. Age-specific responsiveness of weight and length to nutritional supplementation. *American Journal of Clinical Nutrition* 51: 359–364; Shrimpton et al. 2001.
- <sup>xxiv</sup> BASICS. 1999. *Nutrition Essentials: A Guide for Health Managers*.

- <sup>xxv</sup> HKI Bangladesh. Bangladesh Food Security and Nutrition Surveillance Project (FSNSP), Data from Rounds 1-3, January –December 2010
- <sup>xxvi</sup> WHO will be releasing new guidelines regarding iron supplementation of children in areas of high malaria prevalence.
- <sup>xxvii</sup> BASICS. 1999
- <sup>xxviii</sup> Assis et al. 2005. Growth faltering in childhood related to diarrhea: a longitudinal community-based study. *European Journal of Clinical Nutrition* 59:1,317–1,323; Moore, S.R., et al. 2001. Early childhood diarrhea and helminthiasis associated with long-term linear growth faltering. *International Journal of Epidemiology* 30(6):1,457–1,464; Weisz, Ariana et al. 2011. The duration of diarrhea and fever is associated with growth faltering in rural Malawian children aged 6-18 months. *Nutrition Journal* 10:25.
- <sup>xxix</sup> Bhutta et al. 2008.
- <sup>xxx</sup> PAHO. 2003. *Guiding Principles for Complementary Feeding of the Breastfed Child*. [http://www.who.int/maternal\\_child\\_adolescent/documents/a85622/en/index.html](http://www.who.int/maternal_child_adolescent/documents/a85622/en/index.html).
- <sup>xxxi</sup> Rasheed, Sabrina, Rukhsana Haider, Nazmul Hassan, Helena Pachón, Sanjeeda Islam, Chowdhury S.B. Jalal, and Tina Sanghvi. 2011. Why does nutrition deteriorate rapidly among children under 2 years of age? Using qualitative methods to understand community perspectives on complementary feeding practices in Bangladesh. *Food and Nutrition Bulletin* 32(3): 192–199; Kimmons, Joel E., Kathryn G. Dewey, Emdadul Haque, J. Chakraborty, Saskia J.M. Osendarp, and Kenneth H. Brown. 2004. Behavior-change trials to assess the feasibility of improving complementary feeding practices and micronutrient intake of infants in rural Bangladesh. *Food and Nutrition Bulletin* 25(3): 228–238.
- <sup>xxxii</sup> Jahan, Rowshon. Accessed November 9, 2011. —Engaging Communities to Help Mothers and Newborns: MaMoni Experience from Bangladesh.” Presentation at the Global Maternal Health Conference in New Delhi. <http://www.mchip.net/node/183>.
- <sup>xxxiii</sup> FSNSP
- <sup>xxxiv</sup> Haider, Rukhsana, Ann Ashworth, Iqbal Kabir, and Sharon RA Huttly. 2000. Effect of community-based peer counselors on exclusive breastfeeding practices in Dhaka, Bangladesh: a randomized controlled trial. *Lancet* 356(9,242):1,643–1,647.
- <sup>xxxv</sup> Sadler, et al. 2011. *Community Case Management of Severe Acute Malnutrition in Southern Bangladesh*. Medford, MA: Feinstein International Center and Tufts University.
- <sup>xxxvi</sup> von Kotze, A. 2008. *Nutrition, Family, Community: Choroibhati*. Dhaka: HKI/Bangladesh and Save the Children USA..
- <sup>xxxvii</sup> CORE Group et al. 2011. *Essential Nutrition Actions Framework 2011: III. Training Guide for Community Volunteers*. [http://www.coregroup.org/storage/Nutrition/ENA/III.CV\\_Training\\_Guide\\_complete.pdf](http://www.coregroup.org/storage/Nutrition/ENA/III.CV_Training_Guide_complete.pdf).
- <sup>xxxviii</sup> Adapted from: CORE Group. 2010. *Nutrition Program Design Assistant: A Tool for Program Planners*. p. 7–8.