PLANNING FOR PROGRAM IMPLEMENTATION OF HOME FORTIFICATION WITH MICRONUTRIENT POWDERS (MNP): A STEP-BY-STEP MANUAL

HF-TAG Home Fortification Technical Advisory Group

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Cover image: Mother feeding MNP to her child for first time – Chongwe, Zambia 2012.
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HOME FORTIFICATION
TECHNICAL ADVISORY GROUP (HF-TAG)

PLANNING FOR PROGRAM IMPLEMENTATION OF HOME FORTIFICATION WITH MICRONUTRIENT POWDERS (MNP): A STEP-BY-STEP MANUAL*

VERSION 1: JANUARY 2015

* This manual is a product of HF-TAG, endorsed by individual organizations. It does not support the micronutrient product of any specific company, irrespective of whether the company is a member of HF-TAG.

List of Acronyms

BCI	Behavior change interventions
CDC	United States Centers for Disease Control and Prevention
FAO	Food and Agriculture Organization of the United Nations
GAIN	Global Alliance for Improved Nutrition
HF-TAG	Home Fortification Technical Advisory Group
IYCF	Infant and young child feeding
IYCN	Infant and young child nutrition
MNP	Micronutrient powders
MT	Metric ton
NGO	Non-governmental organization
ProPAN	Process for the Promotion of Child Feeding
RNI	Recommended nutrient intake
SES	Socioeconomic status
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WFP	United Nations World Food Programme

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About This Manual

The overall objective of this manual is to outline the key steps and considerations that inform the design, implementation, and management of programs which distribute multiple micronutrient powders, commonly referred to as micronutrient powders or MNP, to children aged six to 59 months,[1,2] or sub-groups within this age range, through public distribution based on a program cycle model. MNP distribution through public channels can be carried out through health facilities, cash transfer programs, or local NGOs which provide MNP either free of charge or for a nominal or subsidized fee. In this manual, we refer to multiple micronutrient powders as either 'micronutrient powders' or 'MNP'. While the primary focus of this manual is the public distribution of MNP, some of the principles in this manual also apply to market-based and other distribution models.

Who is this manual for?

This manual was developed by the Home Fortification Technical Advisory Group (HF-TAG) in response to the increasing need for tools to guide the planning for implementation of MNP programs. It has been written with program designers, implementers, and managers in mind.

What can you find in this manual?

This manual focuses solely on the implementation process of MNP programs; some general background on MNP is provided as a means of introduction and quick reference for the user. It is assumed at the start of this manual that an informed decision to use MNP has been made, with the intent to have public distribution at-scale as the ultimate goal. To reach the coverage necessary to improve nutrition among the world's most vulnerable populations, governments need to champion and lead the implementation of nutrition interventions such as home fortification. It is assumed that the process described in this manual will be undertaken by governments in collaboration with their partners.

Decision-making tools and guidance such as the *Process for the Promotion of Child Feeding – A tool to improve infant and young child feeding* (ProPAN)[3] and the UNICEF decision- making frameworks (**Figure 1**) are available to help guide the decision-making process of context-adequate nutrition interventions.

Other HF-TAG manuals exclusively devoted to monitoring (HF-TAG, 2013) and MNP composition (HF-TAG, 2013) are available on the HF-TAG website.

[1] The use of MNP does not conflict with breastfeeding or with a timely transition from exclusive breastfeeding to the introduction of complementary foods at six months of age as recommended by WHO.

[2] The target group should be those who are at risk of having an inadequate intake of micronutrients; evidence from multiple countries suggests that the period of highest vulnerability is six to 23 months of age, when nutrient needs are high and food variety and quantity are limited. Children 24 to 59 months of age may also be at high risk of inadequate dietary intake of some nutrients. When home fortification is being introduced in a population for a period of several years, children aged 24-59 months will have been exposed to MNP when they were 6-23 months of age. In this instance, prioritizing the age range of 6-23 months may be a good choice. However, when the problem of micronutrient deficiencies is widespread, or the program is to be implemented for a limited period of time, it might be better to target a wider age range.

[3] Available at: www.paho.org/hq/index.php?option=com_content&view=article&id=5668&Itemid=4067

Text Box 1. ProPAN: A decision-making tool to identify proper nutrition interventions

Process for the Promotion of Child Feeding: A tool to improve infant and young child feeding

Selecting an adequate nutrition strategy depends on a proper analysis and a thorough understanding of the determinants of the nutritional problem. Prior to selecting any type of intervention, such as the distribution of MNP, a careful analysis of the nutrition situation should be conducted, using appropriate tools for data collection on the feeding practices of caregivers and diets of children during the first two years.

ProPAN is a comprehensive tool for program planners wishing to improve infant and young child nutrition (IYCN), with attention to the improvement of both breastfeeding and complementary feeding.

ProPAN was specifically developed to design, implement, and evaluate interventions and programs to improve infant and young child diet and feeding. It includes **1)** a field manual with step-by-step guidelines on how to apply quantitative and qualitative research methods; **2)** an Epi Info™-based software program for data entry and analysis; and **3)** a software user's guide.

ProPAN resources are available (in Spanish and English) at: www.paho.org/hq/index.php?option=com_content&view=article&id=5668&Itemid=4067

How to use this manual

Home fortification is the practice of adding nutrients to food at the point of consumption (typically, the home) to improve the nutritional quality of the food. Home fortification interventions are still a relatively new strategy in public health nutrition. Although a significant body of scientific literature supports the efficacy of home fortification interventions,[4] primarily with MNP, there is little operational guidance, and few published examples of best practices in program implementation or any of its components, including planning, behavior change, or monitoring and evaluation. This manual addresses this gap and provides guidance on how to prepare for the implementation of a home fortification program with MNP.

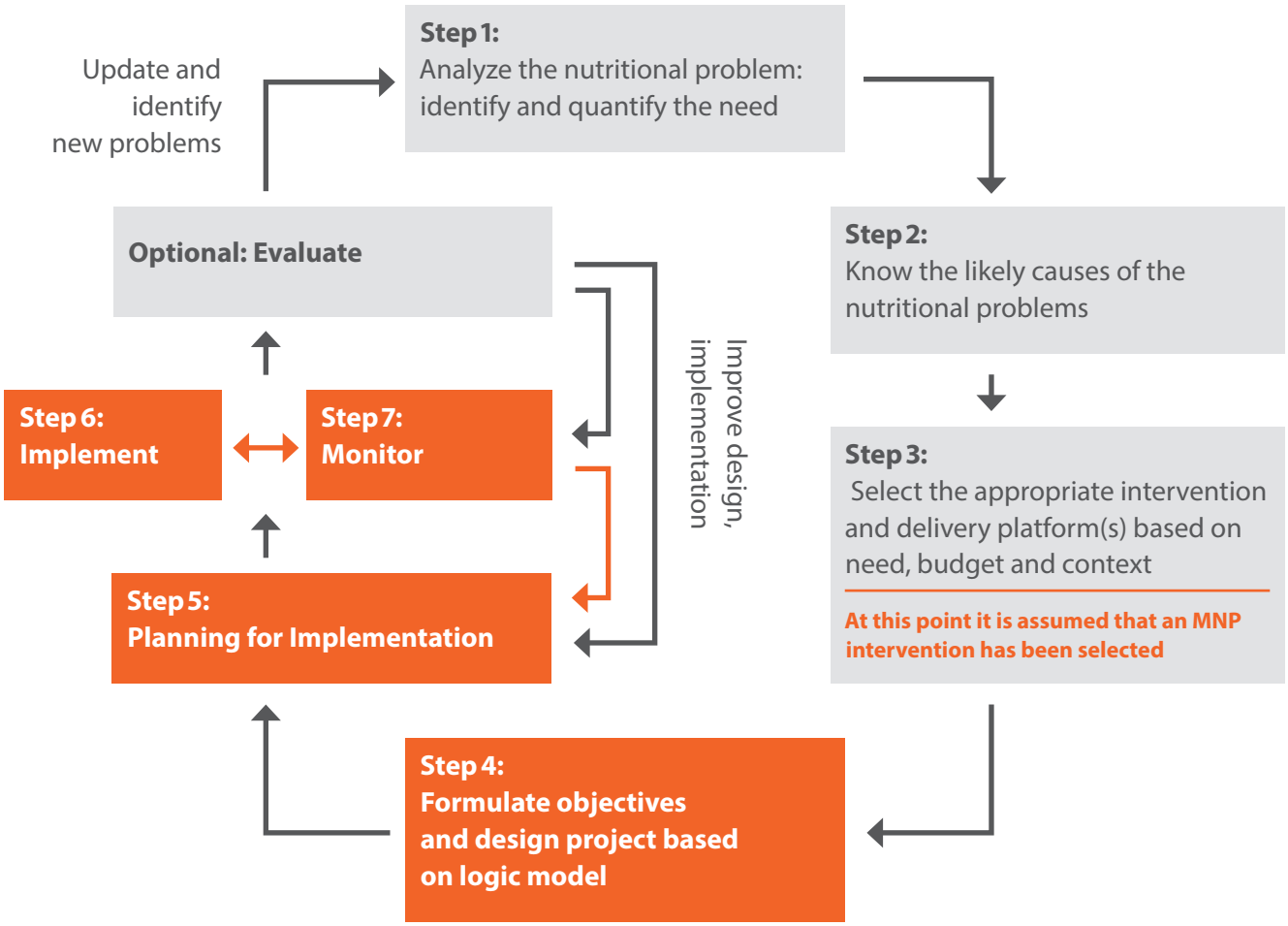
This manual is **not** prescriptive. It is intended to serve as a step-by-step guide to inform the planning and implementation process, emphasizing key components and considerations for the successful planning and execution of an MNP program. However, when utilized, it must take the local context into consideration.

The project cycle diagram (**Figure 1**, page 8) is based on programmatic experience and guides practitioners in the necessary steps towards the implementation of an MNP program. It serves as this manual's road map. Programs which include the distribution of specialized commodities such as MNP must undergo a thorough process of designing, planning, implementation, and monitoring in order to ensure adequate introduction and rollout. As it is assumed at the start of the manual that the decision to use MNP has already been made using adequate decision-making tools (WHO, 2012) (UNICEF-CDC, 2013), emphasis is placed on **steps 4 through 7** of the project cycle.

[4] In addition to MNP, other products such as small-quantity lipid-based nutrient supplements (SQ-LNS), Ying Yang Bao (YYB) and dispersible tablets are added to complementary foods.

Figure 1. The MNP Project Cycle

Focus on steps 4, 5, 6 and 7 of the program cycle



Background

Home fortification with MNP

Promoting appropriate complementary feeding practices is a key intervention in the reduction of micronutrient malnutrition. Home fortification of complementary foods with vitamins and minerals is an effective evidence-based public health intervention. Today, numerous innovative products are available for home fortification, including multiple micronutrient powders (such as Sprinkles® and MixMe™), small-quantity lipid-based nutrient supplements (such as Nutributter®), and multi-nutrient supplements which contain a powdered mixture of vitamins, minerals, and full-fat soy (such as Ying Yang Bao). These products can be easily added at home to typically consumed foods, in order to fill gaps and meet micronutrient needs.

MNP are the most well-known product to be used for home fortification. In controlled trials, home fortification with MNP has proven to be an efficacious approach to treating and preventing anemia and addressing several micronutrient deficiencies; in operational research and programmatic settings, it has proven effective due to high acceptability by users. The use of MNP is supported by a World Health Organization (WHO) guideline, and has been endorsed and adopted by multiple United Nations (UN) agencies, non-governmental organizations (NGOs), and local governments as an integral component of improved IYCN strategies (WHO, 2012) (UNICEF-CDC, 2013).

Home fortification with MNP aims to guarantee that the combination of breast milk, complementary food, and MNP meets the micronutrient needs of older infants and young children aged six to 23 months. MNP was originally developed as an alternative to iron drops and syrups in the prevention and treatment of iron deficiency anemia (Dewey, Yang, & Boy, 2009). In addition to overcoming poor adherence due to common side effects from iron drops, such as stains on teeth or gastrointestinal upset, the MNP approach delivers vitamins and minerals in addition to iron. Given the likelihood that children who are iron deficient are also deficient in other key micronutrients, especially zinc, iodine, and vitamin A, this approach has proven successful in maximizing the opportunity for nutrient delivery and absorption.

Home fortification programs have the most impact when integrated into comprehensive health and nutrition programs. For example, programs which promote appropriate breastfeeding and complementary feeding practices, or which are linked to other health promotion strategies and programs such as water, sanitation and hygiene, growth monitoring and vaccination, and early child development, are all appropriate platforms for the delivery of MNP.

1 Chapter 1

In this chapter:

- **Step 1:** Analyze the nutrition problem
- **Step 2:** Identify the determinants of the nutritional problem
- **Step 3:** Select the appropriate intervention and delivery platform(s) based on need, budget and context
- **Step 4:** Formulate objectives and design project based on the logic model

The logic model
Defining outputs
Defining outcomes

The MNP Project Cycle: Step by Step

The decision to include home fortification with MNP as a component of any comprehensive strategy to improve infant and young child feeding (IYCF) should be driven by a thorough needs assessment. It is assumed at the start of this manual that **steps 1, 2, and 3** of the project cycle (**Figure 1**) have been carried out, and that the decision to implement an MNP intervention has been made, taking into consideration the specific local needs, context, and available budget. If this analysis has not been yet conducted, the user of this manual is strongly encouraged to take a step back and start at step 1.

While this manual assumes that these steps have been carried out, a brief description of **steps 1, 2, and 3** is presented below, in the interest of emphasizing key aspects.

Step 1: Analyze the nutrition problem

Expected outcome:
+ Gain a thorough understanding of the nature of the nutritional problem and the affected population

Specifically, identify and consider the following:

- The national prevalence of malnutrition across social economic status (SES) categories, ethnicity, and geographic areas (urban/rural), taking into consideration possible inequities among the most vulnerable groups.
- Available data on dietary intake, such as food consumption, expenditure surveys or specific studies/evaluations by academic institutions, NGOs, or aid/cooperation agencies.
- Available data on macronutrient and micronutrient deficiencies, and factors which can influence nutrient absorption, such as the prevalence of anemia and other micronutrient deficiencies.
- Available data on complementary feeding practices, such as national health and nutrition surveys which include 24-hour recall on foods given to children, or other research devoted to complementary feeding practices.
- International and local recommended nutrient intake (RNI) for the intended target group(s).
- Relevant data on local factors which influence food availability and dietary intake: Seasonality, emergency situations or national disasters, and socio-cultural factors.

Other data collection methods are appropriate, including, but not limited to, user-informed operations research, qualitative methods, and participatory action research. Additional potential sources of information include country-specific studies (research articles or graduate theses), and reports by WHO and other UN agencies such as UNICEF's State of the World's Children, and the Food and Agriculture Organization (FAO)'s State of Food Security.

The information available or collected should provide an insight into the adequacy of the micronutrient content of the local diet. It can thus inform the need to fill any existing nutritional gaps, and can also be used to identify potential target groups for the intervention. Priority target groups must be those which are suspected or known to have an inadequate micronutrient intake. A significant body of scientific evidence and data from multiple countries suggests that the period of highest vulnerability to iron deficiency anemia and other micronutrient deficiencies is six to 23 months of age. During this period, children have very high nutrient requirements relative to their limited stomach capacity. Moreover, inadequate complementary feeding practices, characterized by poor quality and the insufficient quantity of nutrient-rich foods consumed by the child, are common during this period. Children 24 to 59 months of age, or other vulnerable groups, may also be at high risk if the dietary variety is also inadequate to meet their nutrient needs.

Key stakeholders must be involved in the analysis of the nutrition problems (**steps 1 and 2**), and the development of the strategy to create joint ownership. In addition to nutrition champions and key players, government bodies, organizations and/or approval committees which play a role in the decision-making process on nutrition interventions and policymaking should be considered.

Step 2: Identify the determinants of the nutritional problem

Expected outcome:

+ Gain a thorough understanding of local feeding practices and social norms, knowledge and attitudes related to nutrition
+ Identify the likely determinants of the nutrition problem

After completing **step 1**, you should have a general understanding of the nutrition situation of the target population. **Step 2** requires you to understand the factors that influence nutrition outcomes. The UNICEF Framework is a tool that can assist in identifying the determinants of malnutrition (United Nations Children's Fund, 1990). The Framework outlines three levels of determinants of child malnutrition: immediate, underlying, and basic. The immediate determinants are the individual-level variables of dietary intake and health status. Dietary intake and health status, in turn, are dependent on underlying variables that include household food security, maternal and child care, and health services and a healthy environment. The most basic causes of malnutrition are the social, economic, and political structures acting on the underlying factors.

Step 3: Select the appropriate intervention and delivery platform(s) based on need, budget and context

Expected outcome:

+ Identify an adequate intervention

For the purpose of this manual, it is assumed that an MNP intervention has been selected

Upon completion of **steps 1 and 2**, and having decided to implement an MNP program, the next step is to do further landscape analysis to identify:

- Each stakeholder's needs, interests, resources, and possible contributions to the MNP program
- Additional collaborating partners to be approached for the implementation of specific program activities, such as behavior change intervention and monitoring components
- Potential disagreements or conflicts of interests which might arise and potentially jeopardize the program, such as catchment areas or other programming already in place
- Opportunities and relationships which can be built or strengthened throughout the design and implementation process
- The best platform or combination of platforms to deliver MNP.

Possible collaborating partners, such as those which can apply for tenders, develop and implement a comprehensive behavior change intervention and communication strategy, set out a distribution strategy, and perform monitoring and evaluation. Collaborating partners can be a combination of public and private sector actors, including NGOs, universities, private sector, government, and civil society groups. In the case of actors which are relevant but not aware of the intervention, advocacy efforts must be conducted early in order to gain support.

Experience shows that approvals (for example, government policies, product registration, and/or ethical review for research components) must be in place well before the intervention is launched in order to avoid delays in the implementation process. It is therefore recommended that, as part of **step 3**, program planners:

- Conduct an analysis of the permits and approvals necessary to distribute MNP in-country.
- Government policies and operational protocols that need to be changed or developed to institutionalize MNP delivery into public health services.

Going through **steps 1, 2, and 3** is an invaluable investment of your time and effort. Understanding the local context in-depth is the only way to identify the correct solutions to current needs. Moreover, it is this analysis which will inform the process to follow.

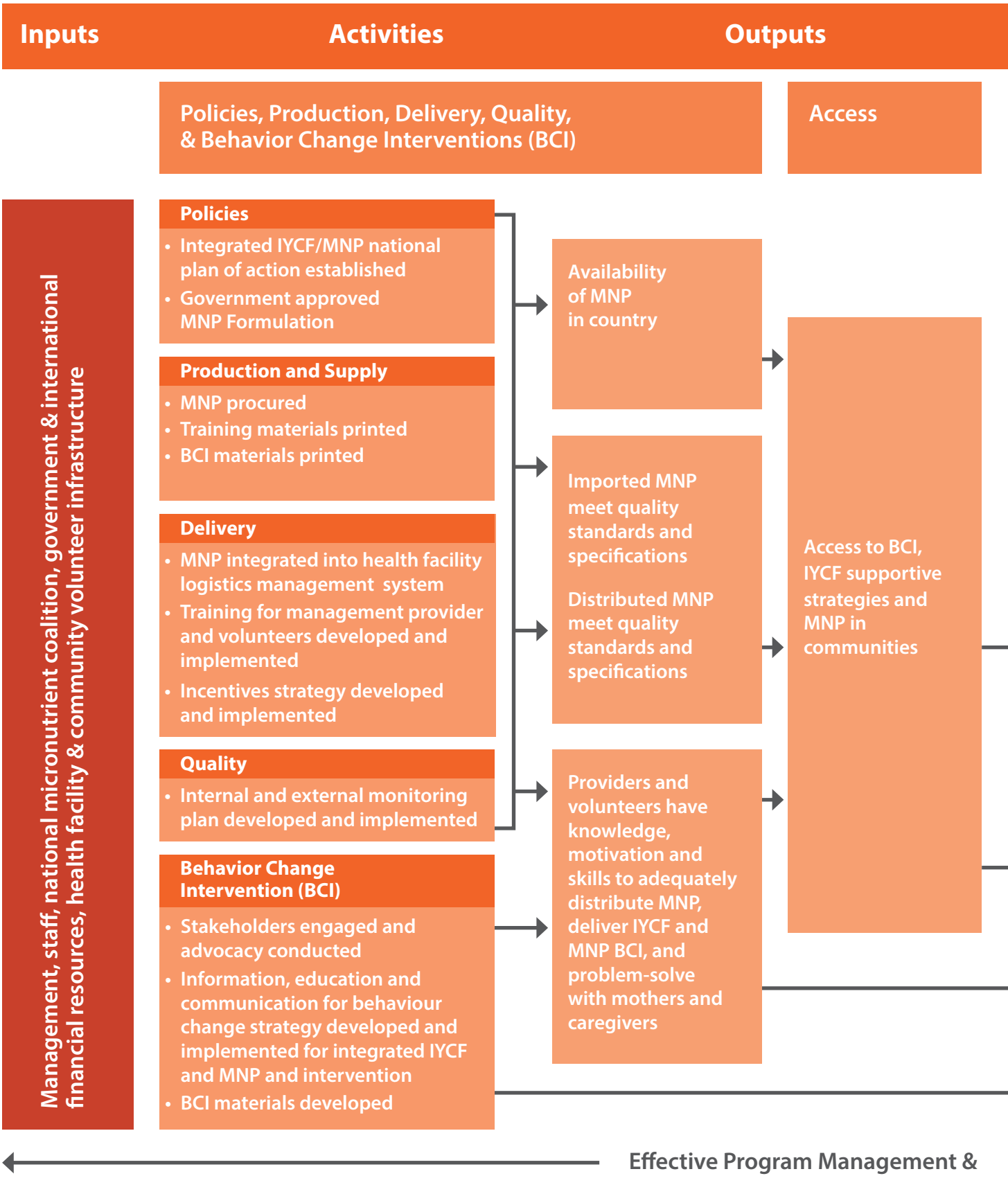
Step 4: Formulate objectives and design project based on the logic model

Expected outcome:
+ Formulate objectives
+ Develop project logic model, according to the local context and immediate needs

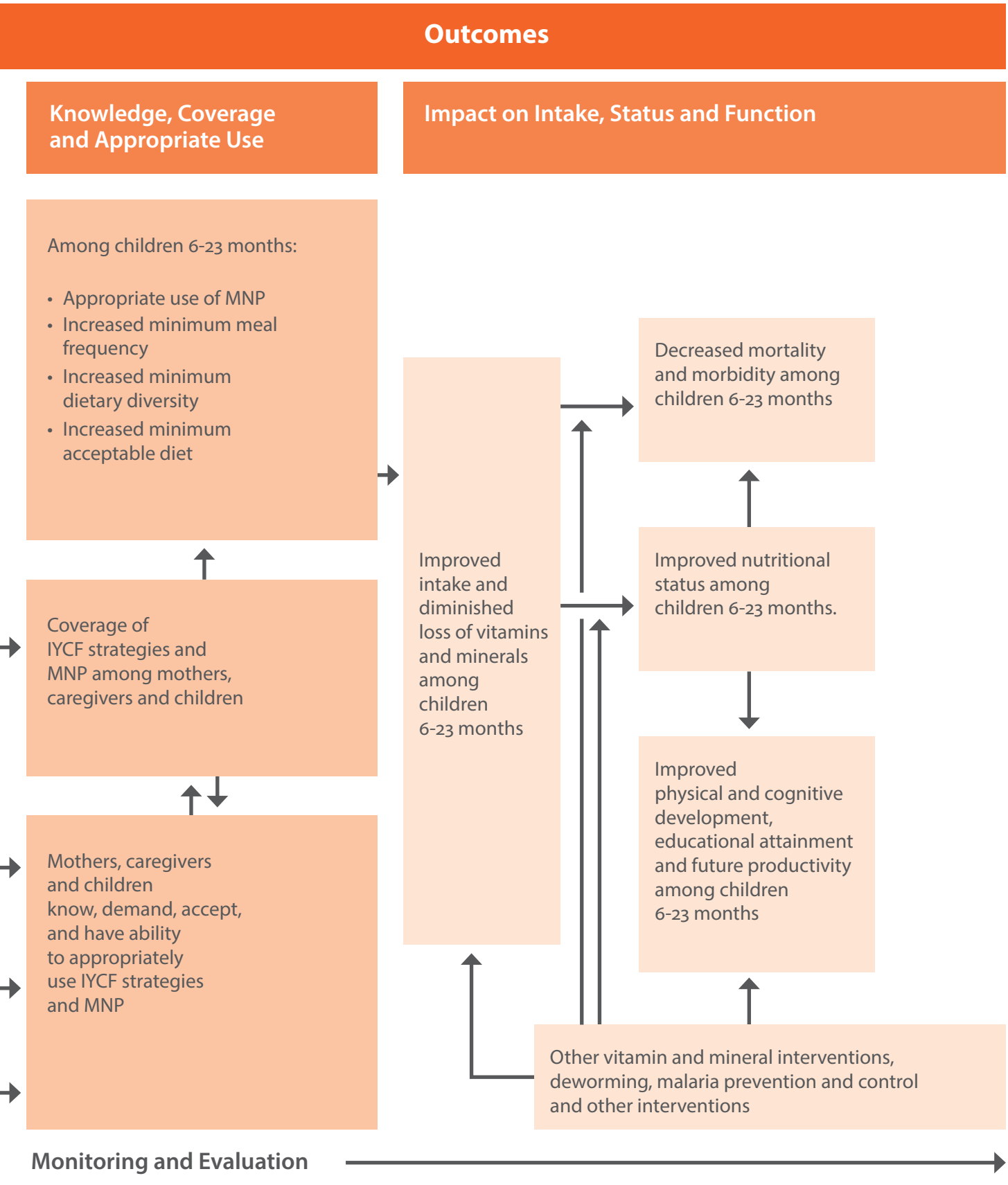
The logic model: A logic model is a one-page visual depiction of the program, which outlines the relationships between program resources, activities, and expected outcomes. It is always recommended that MNP is delivered through integrated programs which address broader nutrition objectives, such as the improvement of IYCF. The MNP component should, however, still have its own specific objectives and outcomes, such as improving nutrient intake, reducing micronutrient deficiencies, or reducing the prevalence of anemia. By establishing clear objectives and expected outcomes, achievable expectations are set for the MNP program.

The *WHO/CDC Logic Model for Micronutrient Interventions in Public Health* (WHO/CDC 2011) can be adapted to any public health vitamin and mineral intervention. This model includes four hierarchical categories, which describe the expected program processes: Inputs, activities, outputs, and outcomes. The WHO/CDC logic model adapted for an IYCF/MNP program is presented in **Figure 4**. It establishes the basic steps for program implementation, and outlines the theory of change of the intervention. It assumes that the program objectives, and the steps to be followed to reach the outcomes and ultimate impact, are clearly defined.

Figure 2. Generic Integrated Infant and Young Child Feeding (IYCF) and Micronutrient Powder

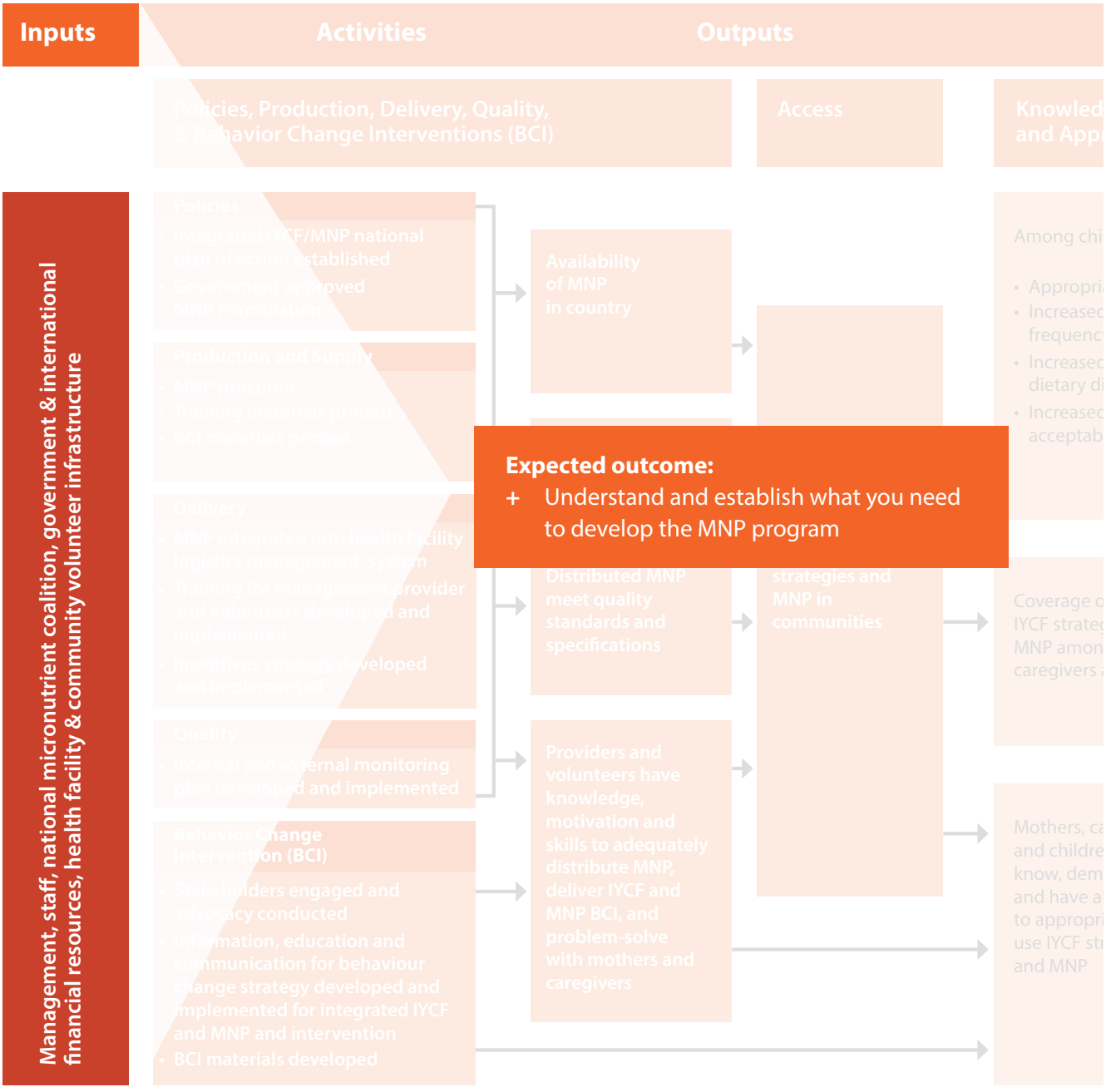


(MNP) Project Logic Model

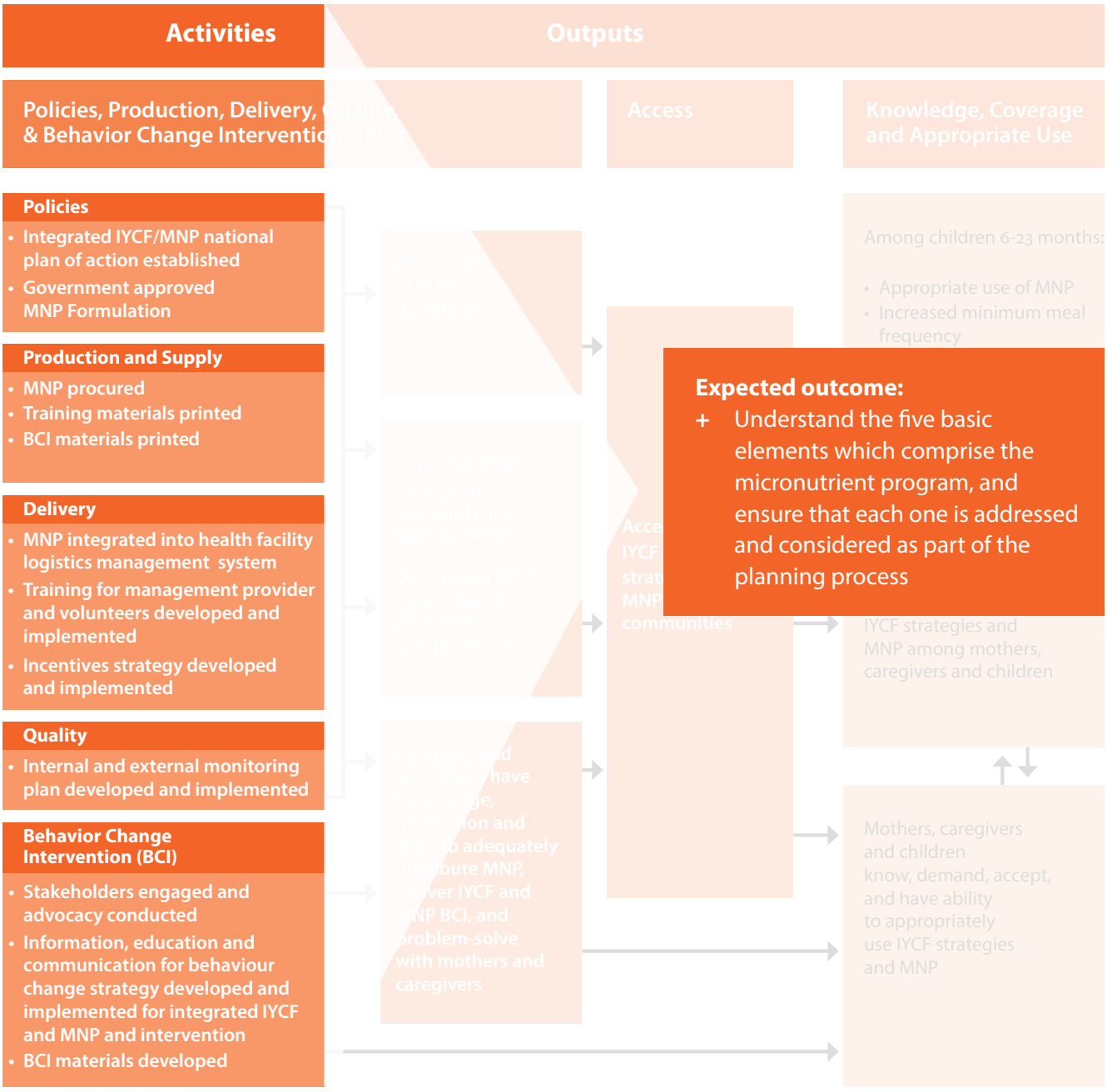


The following sections provide specific guidance on the development of the logic model, working from the left side to the right side of the model. As you create your own program logic model, please ensure that you discuss and answer the following questions in relation to each component:

Inputs: What do we need?



Activities: What has to happen?



1. Policies

Integrated IYCF/MNP national plan of actions established

The most successful MNP programs are those which are integrated into existing IYCF interventions, because both interventions utilize common personnel, capacity, and infrastructure at both national and local levels. A decision about the expected scale of the initial program should be made early on. It is recommended that initiatives should start at a relatively small scale. For example, if the plan is to reach a total of 13 districts, the initial implementation should include one to two districts. Progressive implementation and scale-up of an intervention allows for the timely identification of any issues and their rectification. Nonetheless, plans which take the desired long-term scale into consideration should be developed early on, in order to ensure that the program has the potential to move from a small to large scale when the time comes.

Approved MNP Formulation

It is important that the MNP composition to be used is discussed with and approved by official national institutions. The MNP composition recommended by HF-TAG contains 15 vitamins and minerals, and provides approximately one daily amount per dose, based on the RNI for children aged one to three years.[5] RNI is the amount of a nutrient that is enough to ensure that the needs of nearly all the group (97.5%) are being met. For more details on MNP composition, please refer to the *HF-TAG Manual on Micronutrient Powder (MNP) Composition – Guidelines and specifications for defining the micronutrient composition of single serve sachets for specified target populations in low- and middle-income countries with high prevalence of anemia and micronutrient deficiencies*, available on the HF-TAG website.

As a general guide, the frequency and duration of the MNP in use should be such that it contributes enough required micronutrients for the combination of breastmilk (if the child is being breastfed), the diet, and the MNP to meet the RNI for all micronutrients on a daily basis. Each 1 g sachet provides approximately one RNI for each micronutrient. If a program distributes 90 sachets for a six-month period, this provides a dosing regimen of three to four sachets/week, for an average dose of 50% of the RNI/day. This regimen assumes that the child receives the remaining 50% of the RNI from complementary foods and breast milk (if the child is being breastfed). Several other dosing regimens used by program planners include: Two to three sachets/week (60 sachets over a six-month period), which meet, on average, 33% of the RNI, and four to five sachets/week (120 sachets for a six-month period), which provide, on average, 67% of the RNI. There is no single 'correct' or incorrect frequency or duration of distribution. Your decision about the frequency and duration of MNP use should be based on your local context and circumstances, including your total budget for the program.

Sachets should be made available to target groups throughout the year. It is recommended that the target group receives no fewer than 60 sachets over a period of six months, and no more than one sachet per day (for example, 180 sachets over six months), repeating cycles such that children receive the allocated amount during subsequent six-month periods. Thus, if the program is directed to children six to 24 months of age, the children go through three six-month cycles (please refer to WHO guidelines), for those entering the program at six months. Meanwhile, there would only be two dosing cycles for those entering the program at 12 months.

When deciding on the micronutrient composition, frequency, and duration of an MNP program, contextual factors should be taken into consideration. These include not only the larger IYCF strategy, safety and security for distribution, the extent of deficiencies to be addressed and the resources available, but also aspects such as the caregivers' preference/acceptability for optimal adherence.

Ultimately, the decision on the number of sachets, and on which groups to target, and over what period of time, should be based on the risk of micronutrient deficiencies and seasonal fluctuations in food consumption, as well as the overall budget.

[5] Refer to the MNP composition manual for more details on micronutrient selection

Table 1. Recommended content of micronutrient powder per dose for children 6–59 months old

Micronutrients	Amount per Dose
Vitamin A	400 µg RE
Vitamin D	5 µg
Vitamin E	5 mg
Vitamin C	30 mg
Thiamine (vitamin B_1)	0.5 mg
Riboflavin (vitamin B_2)	0.5 mg
Niacin (vitamin B_3)	6 mg
Vitamin B_6 (pyridoxine)	0.5 mg
Vitamin B_{12} (cobalamin)	0.9 µg
Folate	150 µg[6]
Iron	10 mg
Zinc	4.1 mg
Copper	0.56 mg
Selenium	17 µg
Iodine	90 µg

2. Production and Supply

MNP Procurement

MNP can be imported or locally packaged. MNP can be procured through the UNICEF supply division, WFP, GAIN's Premix Facility, NGOs, and governments, or directly from manufacturers.

The estimated MNP supply needs can be determined by taking the following into consideration:

- The total estimated number of children aged six to 59 months or the total estimated number of school-age children
- MNP ration size
  - For older infants and young children: 1 single serving sachet of 1 g,
  - For school feeding programs: 1 large sachet of 8 g (contains 20 servings of 0.4 g each)
- Program duration (for example, the number of single serving sachets to be provided over a six- or 12-month period, or the number of school feeding days)[7]

If the program intends to procure premix for local packaging, the formula used to calculate the required metric tonnage of premix is as follows:

(Estimated total beneficiaries × ration size per person per day in grams × duration of support in days) ÷ 1,000,000= Metric Tons (MT)

For example:

1. 200,000 children (6 to 23 months of age) x 1.0 gram * 180 days (at 1 sachet per day) ÷ 1,000,000 = 36 MT
2. 200,000 school age children * 0.4 gram * 180 days ÷ 1,000,000 = 14.4 MT

If the program intends to import pre-packaged sachets, the formula used to calculate the required sachets is as follows:

Estimated total beneficiaries × ration size per person per day in grams × duration of support in days = total # of sachets required

[6] 150 µg folate is equivalent to 88 µg folic acid.
[7] For more guidance, please see "Managing the Supply Chain of Specialized Nutritious Foods" (docustore.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp259937.pdf).

For example:

1. 200,000 children (6 to 23 months of age) * 1 g/day x 180 days = 36 million sachets
2. $\frac{\text{200,000 school age children x 180 days (8 g sachet)}}{20^{8}} = \text{1.8 mill. sachets}$

Based on the established quality assurance and certification process at the time of writing this manual, UNICEF approves international suppliers. Information on approved suppliers at present can be found on the UNICEF Supply Division website: **www.unicef.org/supply/index_27009.html**

Additional information on MNP manufacturers can be found on the HF-TAG website: **www.hftag.org/wp-content/uploads/2014/12/2015.01.26-Manufacturer-List.pdf**

When procuring a pre-packaged MNP from a reputable manufacturer, the following steps should be followed:

- **1.** The procurement agency (e.g., UNICEF Supply Division, GAIN Premix Facility, and WFP HQ) or government provides the specifications for the tender, including requirements for standard sachet design, and preparation of the carton box design. (If a local design is required, it should to be provided by the government or agency before tendering — please see the section on local packaging considerations on pages 29–32.) Tendering should only be carried out after the MNP composition has been decided, the sachet design agreed upon, and the box design completed.
- **2.** The procurement agency (e.g., UNICEF Supply Division, GAIN Premix Facility, and WFP HQ) or government issues a tender for the number of sachets to approved suppliers.
- **3.** The government or agency responsible for procurement provides dates by which the batches of MNP are needed, bearing in mind the product's 'best before' date,

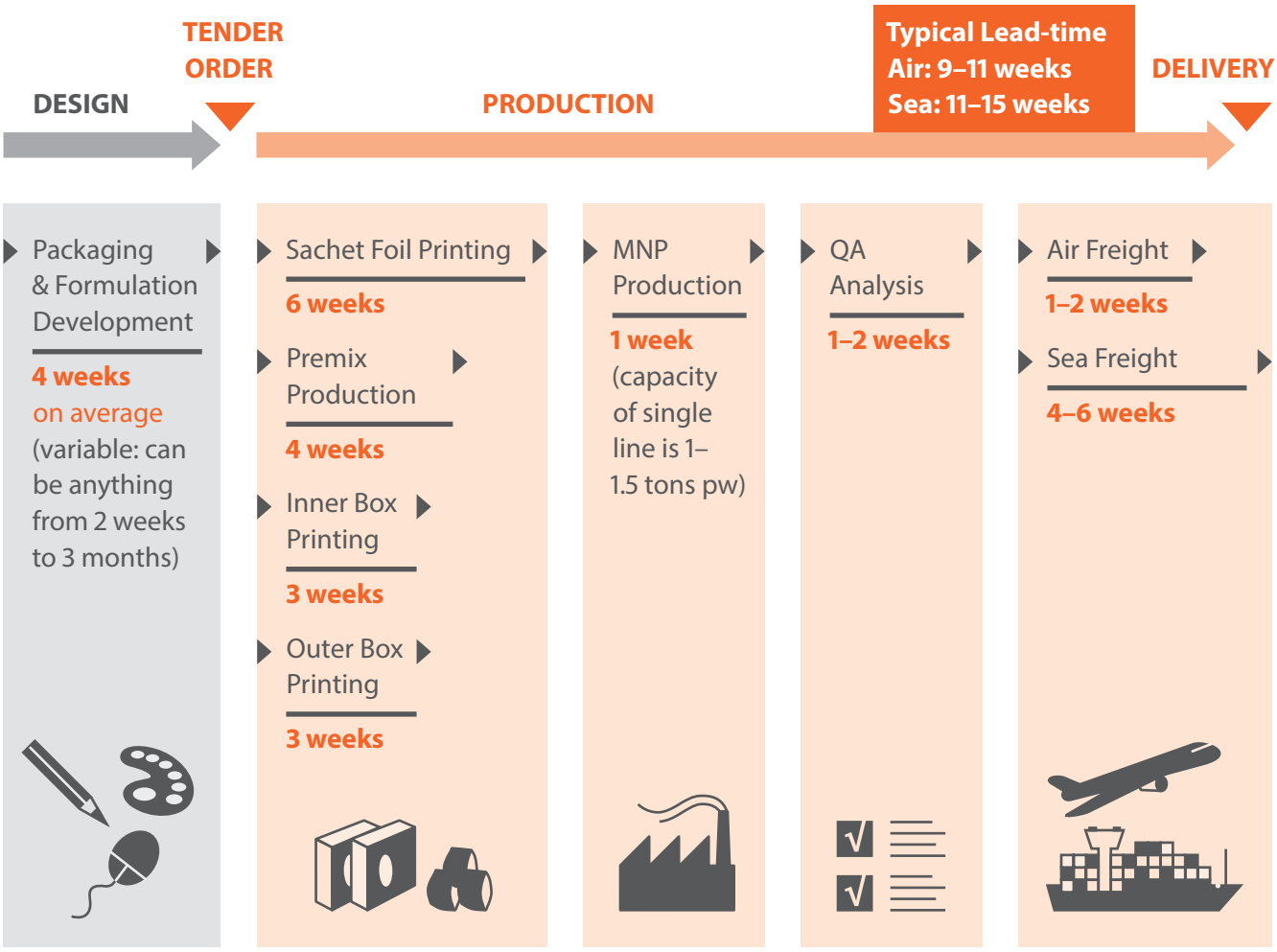
See **Figure 3** for an estimated idea of supply chain lead-time (currently between nine and 15 weeks), starting from the time when the sachet foil and (inner) box are printed and the premix is produced.

In order to ensure the quality and shelf life of the product, the package (sachet) must meet certain quality criteria. Information on this issue is available from the Sprinkles Global Health Initiative (Sprinkles Global Health Initiative, 2009) or one may refer to *Micronutrient Powders (MNP): A Technical Information Package, Quality Criteria for Manufacturers* produced by the Sprinkles Global Health Initiative (available at **www.hftag.org**).

The shelf life of individual serving MNP sachets (1 g) is 24 months, under specified storage conditions (dry and cool storage, typically below 25°C), from the time of production. Multiple-serving sachets, usually used for school feeding programs and containing 20 servings per 8 g sachet, have a shelf life which ranges from 18 to 24 months from the time of production. Because MNP have a finite shelf life, programs of over six months may require production and shipment to be carried out in different batches. It is important to bear this, as well as other time sensitive factors, such as the order lead time and customs clearance, in mind while planning your program.

[8] School feeding programs usually use an 8 g multiple serving sachet, which provides 20 servings.

Figure 3. Supply chain lead-time



Many countries express interest in producing their own MNP when planning an MNP program. However, what is generally not known is that there is only a small number of reputable premix (vitamin and mineral) suppliers globally. Hence, the pre-mix for the MNP will most likely always need to be imported, and will only be packaged locally. Bearing this information in mind, the use of local packaging does not necessarily bring a cost advantage to the program when the premix is imported, depending on the scale of the program. The decision to consider local production/packaging may be influenced by government decision-making processes, particularly in public sector programs. Other time-consuming and cost-driving factors to consider include transportation costs, import tariffs, and delays that may occur in shipment. The choice of customized vs. generic design and labelling on sachets and boxes can also introduce additional time demands; for more on this, please see **pages 29–30**.

In-country custom and import clearance also require extra time, and should be anticipated. As previously noted in **step 3**, it is imperative that the necessary permits and authorizations to import and distribute MNP are in place prior to the start of the program. Specifically, you must determine in advance if you are required to obtain any of the following:

- Clearance from the national authorities to import or package the product in-country,
- Registration with any authorities responsible for

regulating food supplements or drugs (depending on the type of registration selected for the product), and
- Ethical approval for monitoring activities.

In most countries, it can take up to three months to obtain clearance and other necessary permits. Meanwhile, ethical approval and registration, which can be achieved during the course of the program, can take up to six months.

Regardless of whether the MNP is locally packaged or imported, it will most likely need to be registered in-country. MNP have traditionally been registered as a food supplement or as a medicine/pharmaceutical. It is generally recommended that an MNP is registered as a food supplement, not as a medicine or pharmaceutical product. This is because food supplements generally have fewer restrictions on who can distribute them, as well as less stringent manufacturing requirements than medicine or pharmaceuticals. Additionally, an MNP is generally considered a food-based approach to improving child nutrition. Notwithstanding this, the final decision on how a product will be registered should be driven by the particularities of the program. For instance, if a country intends to distribute MNP through public health clinics, having the product registered as a medicine is not likely to pose a problem. However, if local merchants are expected to sell MNP in communities, registering the product as a food supplement makes the most sense, depending on how local legislation regulates the promotion and sale of food and pharmaceutical products.

The printing of training and behavior change communications materials *(Training materials printed' and 'Behavior change communications materials printed)* is addressed as part of the production and supply activities. We address this here, because it must be included in the planning process if the materials are to be ready at the time the intervention is launched. However, please see this manual's sections on training and behavior change communications for specific information on developing these materials.

3. Delivery

MNP integrated into health facility logistics management system

When sub-national or national distribution of MNP is planned, the product is commonly distributed at health facilities. However, other public or market-based channels, or a combination of distribution channels, can be utilized for effective distribution. This manual focuses on establishing public distribution models.

MNP distribution through public channels can be carried out through health facilities, cash transfer programs, or local NGOs which provide MNP either free of charge or for a nominal or subsidized fee. *Market-based channels* – an emerging distribution model for MNP – make MNP available for purchase through a variety of access points, such as door-to-door sales, markets, pharmacies, health centres, or other places where consumers access goods and services. In addition to distribution through public channels, market-based approaches can increase access, coverage, sustainability, and the use of home fortification products at scale. The existence of an alternative distribution mechanism is particularly valuable in cases where the public delivery system does not reach everyone, where programs delivering MNP only do so in limited geographical areas within a country, or when public distribution has reached a mature point and the product is sufficiently in demand or has been widely accepted, so there is potential for a commercial market.

The development of protocols that serve as instructions to health workers or other personnel who will manage the supply chain, deliver MNP and educate caregivers about the intervention is a crucial activity in the process of institutionalizing a public distribution model. Information that needs to be included in such protocols includes:

- Description of how the protocol for the delivery of MNP relates to existing medical care protocols (for example, guidelines for pediatric care, treatment of acute malnutrition and integrated management of childhood illness [IMCI])

Text Box 2. Public Distribution Model Case Study

Kyrgyzstan Case Study: Public distribution through the village health committees and early childhood development program

In Kyrgyzstan, MNP are provided free of charge at a national level via the primary health care system. The decision to use a public distribution system was based on the following considerations:

- The high level of poverty (beneficiaries could not pay for the product)
- Over 40% of children living in rural areas had anemia
- The existence of a strong health system, with the capacity for MNP distribution and monitoring activities
- The existence of Village Health committees, with the capacity to distribute MNP and provide nutrition education and instructions on use
- Government support for an MNP program
- The availability of funding, provided by an external donor.

MNP were centrally purchased using donor funds. Information on MNP was integrated into an existing community-based nutrition education program for Village Health Committees, as well as the Early Childhood Development (ECD) program. Mass media was also used to encourage caregivers to visit clinics to receive MNP.

Caregivers of children aged six to 24 months received 30 MNP sachets every two months. Children who completed the entire cycle should have therefore consumed 270 sachets in the 18-month period. Overall, there was a high degree of acceptance of and adherence to the MNP program in Kyrgyzstan. Caregivers were very excited to receive an easy-to-use product which could improve their children's nutrition and health.

It should be noted that the timing of the start of the MNP program was important for the success of this project. Program planners avoided starting the distribution of MNP during the months that coincided with the highest rates of diarrhea, as some caregivers might have attributed the use of MNP to episodes of diarrhea.

- Description of MNP including its contents, benefits, instructions for use, contraindications and potential side effects
- Target age group for children who will receive free MNP through the health system
- Number of MNP to be provided and the frequency of distribution
- Occasions during which MNP will be given to children (for example, growth monitoring and promotion sessions, immunization visits)
- Type of personnel who are responsible for providing MNP to children and/or educating caregivers
- Step-by-step instruction and tools for monitoring the delivery of MNP to children on child health records, child health cards and clinic registers
- Plan for the aggregation of data collected in the monitoring system so that the number of MNP sachets received by children can be tallied across health facilities and districts
- Description and mapping of the work flow for health provision settings (e.g. hospital, health center, health clinic, community-level) and how MNP delivery and counseling on appropriate use will be integrated
- Key messages for the appropriate use of MNP that need to be communicated to caregivers.

Text Box 3. Market-based Distribution Case Study

Madagascar Case Study: Market-based distribution through community-based networks and social franchising channels

The Fortidom project in Madagascar, a pilot project in two districts which targets approximately 15,000 children aged 6 to 23 months, uses social marketing and an innovative behavior change communication strategy. Zazatomady, the locally branded MNP, is distributed not only through community-based networks using trained community health workers in rural areas, but also through social franchising channels, for example private clinics in urban zones – such as PSI Madagascar, which supported Top Reseau private clinics in the urban zones.

In both urban and rural sites, an affordable pricing structure was introduced for caregivers, with motivating margins for distribution intermediaries. Franchised private clinics sell one box of 30 sachets to consumers, at a price of up to 1,000Ar ($0.47), excluding consultation fees. By contrast, PSI Madagascar sells the product to these clinics at 500Ar ($0.24), thus allowing the private clinics to make a significant margin . Community health workers (CHW) sell 1 box of 30 sachets for 200Ar ($0.10) and buy it at 100Ar ($0.0625) from community supply points. PSI Madagascar sells each box of 30 sachets to the community supply points for $0.04. Therefore, CHWs' profit margins are approximately 75Ar, or US$0.04, per 30 sachet box.

Among the incentives structures devised to incentivize and promote the product, community health workers and Top Reseau clinicians received 10 boxes (300 sachets) as free starters' stock, which served as a small revolving fund for future purchases.

Training for management provider and volunteers developed and implemented

A note to the user: In preparation for MNP distribution, the training component directly influences how the product is delivered to the end user. Its description therefore comes under the delivery category. However, given that the messages imparted always derive from the Behavior Change Intervention (BCI) strategy, it should also be emphasized that training is directly related to BCI. As a result, this section, as well as the section on incentives, must be considered alongside this manual's section on BCI.

Training is a critical aspect of the success of any program which requires a new practice or behavior to take place. The successful implementation of an MNP program requires all stakeholders to be aware of and knowledgeable about the importance of MNP and its appropriate use. This includes the intervention providers (such as health care professionals, village health workers, school-teachers, and others), and those who receive the intervention (such as the caregivers, parents, and/or grandparents of the children receiving MNP).

A variety of training models and methodologies can be followed to achieve the desired level of training. These include, but are not limited to, cascade training and replication, professional trainers, and e-training platforms. Ultimately, the most appropriate training method is determined by the financial and human resources and capacity at country level.

Providers and beneficiaries of the intervention should be trained continually, while refresher

training should be provided to staff on a frequent basis in order to ensure the quality of such training. Training should therefore be seen and planned as a continuous component of the MNP program.

An example of issues commonly addressed as part of MNP-specific training is provided for reference:

- **The importance of nutrition and dietary intake on a child's health and optimal IYCF practices**
  Integrating MNP within an IYCF education program provides an opportunity to educate and improve other IYCF practices, namely the key principles outlined in a key WHO/PAHO document: *Guiding Principles for the Breastfed Child* (Dewey K., 2001). It is important to provide an opportunity for families to learn about the value of the timely introduction of complementary foods for a child's health, and the appropriate consistency, quality, frequency, and types of food actively fed to infants and young children at different ages.

- **A comprehensive description of MNP and its value**
  Caregivers need to know what MNP are, and why they are important for combatting iron-deficiency anemia as part of optimal IYCF practices. While different contexts may vary, and while this may depend on findings from earlier formative research, caregivers may express that they wish to learn more about the causes and consequences of anemia.

- **The appropriate use of MNP**
  Formative research carried out prior to this step could provide useful information about traditional foods, local recipes and/or existing feeding practices. Cookery demonstrations, using local foods, offer a great opportunity to show how to add MNP to ready-to-eat, semi-solid/semi-liquid local, traditional recipes, as well as how to add other locally available foods to increase the energy and/or nutrient density of these meals. It is also important to ensure that each child gets an appropriate amount of MNP, depending on the program's distribution regime. For example, children six to 23 months of age should consume the content of one sachet in one day, irrespective of the regime. Within school feeding programs, the teacher or school cook needs to know what proportion of the content of larger sachets should be served to what number of children.

Caregivers should also be aware of relevant information. For example, MNP should not be given to any child suffering from malaria, severe acute malnutrition, or severe anemia. Children with these conditions should immediately be taken to the health center for specific treatment. Intervention providers (for instance, health care workers) may also need to be trained on how to monitor the appropriate delivery and use of MNP. Tools have been created for this purpose and are detailed the in the *HF-TAG Monitoring Manual*.

Text Box 4. Training model case study

Mexico Case Study
Educational Technology: A novel training method used as part of the national scale-up of the Comprehensive Nutrition Strategy of the Oportunidades Human Development Program

In Mexico, the prevalence of micronutrient deficiencies and anemia remains high among pregnant and lactating women, and is still a public health problem for pre-school and school age children. Based on the results of ongoing evaluations of the comprehensive nutrition strategy implemented in some parts of the country, the decision was made to scale-up the program at a national level. This included a new micronutrient supplementation component, which provides different home fortification products, including MNP in urban and rural areas, depending on the age and dietary needs of the targeted beneficiaries.

The Academic Secretary of the Mexican National Institute of Public Health (INSP) designed the training courses, tools, and resources used in the training. The model was defined through a thorough consultation process, incorporating different disciplines, including learning, curriculum, communication, and systems theories. The process was bound by the existing human and technological resources available, the time available to develop it, and the competency-based model followed in all INSP activities.

Multiple challenges were taken into consideration as part of the design process, including, but not limited to: **1)** the diversity of professional profiles to be trained (medical doctors, nurses, health promoters, and communicators) and varying levels of responsibility, education level, and understanding of nutrition; **2)** the multiple priority groups, key topics, and support materials managed by the overall progam strategy; **3)** the program's reach (serving over six million families in both urban and rural areas); **4)** the magnitude of the personnel to be trained (over 80,000 health professionals and 37,000 community workers); and **5)** a huge cultural diversity between and amongst urban, rural, and indigenous areas in the country.

The resulting educational technology training model was a mixed model which incorporated different pedagogic techniques (in classroom, web-based, and portable off-line courses), and included an evaluation system to assess participant learning and the monitoring of the training replication to other levels. The production and implementation of the course followed four stages: Planning, production, implementation, and evaluation.

Cascade training model
Level 1. National in-person awareness raising/ training of federal and state level decision makers and program managers.
Level 2. Mixed training (in person/web based/ portable off-line course) to MoH and Oportunidades trainers.
Level 3. Mixed training (in person/portable off-line course) to local personnel at a community level.

Key lessons learned in the initial execution of the training include: **a)** The dynamics of the training plan considered the importance of identifying and hand-picking locally qualified personnel responsible for training, for example, those responsible for training personnel at a community level; **b)** Technological barriers to the use of virtual courses and the content thereof were identified early on; and **c)** A 75% rate of approval was achieved among the first class of the online course; this is an acceptable rate but, in order to have the largest number of trained personnel possible, a short remedial course was organized for those who did not pass.

Currently (as of June 2014), the training module is still being implemented and barriers continue to be faced and dealt with. These include **a)** A lack of resources to allocate adequate time and human resources to carry out the training as designed by the INSP; **b)** In some cases, an improper selection of community trainers by the states' trainers required them to be replaced; **c)** A lack of ongoing communication between the central and local level; and **d)** The lack of motivation, commitment, and budget to carry out the trainings at the state level.

Incentives strategy developed and implemented

Incentives are often necessary to promote a desired behavior, persuade people to participate in a program, or encourage the use or consumption of a product. Such incentives should be devised as part of the MNP BCI strategy, particularly when the product is first introduced. Incentives should be carefully paired with the desired behavior (for example, getting community health workers to promote the use of MNP or getting parents to attend the health center every month to pick up MNP), and be visible, tangible, or valuable to the end user. In this case, non-monetary incentives include clearly communicating that MNP will help to protect a child from anemia, providing a cooking demonstration or educational event, or determining something of social value to the community with which the MNP can be associated. As presented in **Text box 3** *(Madagascar Case Study: Market-based distribution through community based networks and social franchising channels)*, among the incentives structure devised to promote sales of the product, community health workers and clinicians received 10 boxes (300 sachets) as free starters' stock, which served as a small revolving fund for future purchases.

4. Quality

Internal and external monitoring plan developed and implemented

Monitoring is the ongoing collection, analysis, and interpretation of data on the program inputs, activities, outputs, and outcomes. Monitoring is essential for the effective implementation of all programs. The primary purpose of monitoring is to ensure that the program is being implemented as planned, and that program managers are able to assess the program's performance, identify problems, and use the monitoring data to improve programs in a timely fashion. Practitioners use various terms to describe process monitoring, including: Implementation evaluation, process evaluation (often completed by an external party), performance monitoring, and performance evaluation. Due to the complexity and importance of monitoring, this manual does not address this topic. The *HF-TAG Manual For Developing and Implementing Monitoring Systems For Home Fortification Interventions* is a detailed and comprehensive monitoring guide, and is available on the HF-TAG website: **www.hftag.org/resource/hf-tag-monitoring-manual-14-aug-2013-pdf/**

5. Behavior Change Interventions (BCI)

Behavior Change Interventions (BCI) involve face-to-face dialogue with individuals or groups to inform, motivate, problem-solve, or plan, with the objective of promoting and sustaining behavior change. The goal of BCI is to ensure that the target audience (caregivers of children aged six to 59 months) practice the desired behavior consistently (providing MNP to their children). In the case of MNP, effective communication is key for a number of reasons. First, micronutrient deficiencies are generally an 'invisible' problem, and improvement in micronutrient status is not overtly visible at all times. Second, the behavior change required demands that the product is used for an extended period of time, and requires a change in feeding practices. Therefore, promoting the use of MNP requires knowledge, skills, motivation, acceptability, and a supportive environment. Specialized knowledge and expertise are required for designing a comprehensive BCI strategy, and it is recommended that the support of a local or international organization with relevant experience is sought.

Stakeholders engaged and advocacy conducted

Engaging all stakeholders early on and conducting effective advocacy to gain their commitment is pivotal to the success of an MNP program. In order to capture and convince stakeholders of the value proposition of MNP, which is often intangible and not immediately realized, the advocacy strategy needs to be carefully crafted, so that it resonates across all stakeholders and initiates a positive call to action.

Identifying the right messengers for your project and selecting the most appropriate advocacy message and vehicle to influence each stakeholder are both essential for raising awareness about the value of MNP, and building commitment towards the project. When communicating with individuals ranging from influential government officials to respected community leaders, honing compelling key messages and selecting the most effective communication channels are all essential ingredients to success.

There are a variety of tools and resources available to help craft effective messages, and understanding the target audience for each is crucial. A brief example is presented in **Table 2.**

Table 2. Development of effective BCI messages: Advocacy strategy examples

Stakeholder	Potential role	Advocacy strategy
Government officials	Facilitate the regulatory framework	• Illustrate the nutrition situation and the social, economic and health consequences of micronutrient deficiencies
Donors	Provide project capital	• Translate the scientific knowledge base. Support your argument with hard facts (i.e., evidence has shown a reduction in the prevalence of iron deficiency anemia of over 60%)
Influential community leaders	Facilitate insertion into the community and build credibility	• Explain the product and what it does • Explain the implications of micronutrient deficiencies in a way that is relevant and understandable (for example they, can limit the capacity to learn and pay attention, put children at risk of other health
Caregivers	As the beneficiaries of the intervention, create demand for MNP	• Explain how it is used, the effects to be seen and the value of taking it

At present, a vast body of literature supports the efficacy of MNP, including a 2011 Cochrane review, and a 2012 WHO guideline, which provides a strong recommendation for the use of micronutrient powders to improve iron status and reduce anemia among children six to 23 months of age (resources and information can also be found at www.hftag.org). Moreover, it was estimated in 2013 that 62 MNP programs, ranging in scale and reach, were being implemented in 42 countries.

The message content, tone, and focus for each stakeholder matters. However, there is no one-size-fits-all approach to advocacy. The information available needs to be communicated in the way that makes the most sense, and resonates with local priorities and values.

Information, education and communication (IEC) for behavior change strategy developed and implemented for integrated IYCF and MNP intervention

Four general steps are involved in developing an effective BCI strategy:

1. Formative research

Formative research for BCI is critical to the success of an intervention. Formative research aims to determine how best to fit aspects of program design and implementation to the environmental and cultural contexts of its beneficiaries. It provides crucial data and insights about how to introduce the intervention to the target population, how to "operationalize" the required behavior change in ways that make the recommendations "actionable" for caregivers, identification of the facilitators and barriers to adopting recommended behaviors, determining how best to frame messages, how to motivate their adoption, as well as numerous logistic issues, including issues effective approaches to staff training and supervision, pilot testing behavior change materials and making adjustments based on pilot testing experiences.

There are a variety of methods and tools used to conduct formative research. For example, the Focused Ethnographic Study (FES), a tool developed by Pelto and Armar-Klemesu (2014) with support from GAIN has been used in Ethiopia, South Africa and Bangladesh to obtain localized knowledge for program planning and development of behavior change communication strategies to promote utilization of MNP. The method of Trials of Improved Practices (TIPS) has also been extensively used to test complementary feeding recommendations. TIPS could be productively applied to test the acceptability and feasibility of asking caregivers to use MNP, and provide insight into the motivations and constraints to do so (Dickin et al., 1997).

2. Developing and pretesting concepts, packaging, messages, and materials

It is essential to ensure that, prior to the production of materials and the implementation of an intervention, the findings from the formative research phase are adequately translated into locally accepted concepts, packaging, messages and materials, as well as the training materials for those who will be delivering the messages.

The following key aspects should be evaluated as part of this process:

- Assess the comprehensibility, motivation, recall, and readability of the messages
- Identify strong and weak points, sensitive or controversial elements, confusing or conflicting messages
- Determine the personal relevance of the product to the user
- Ensure cultural appropriateness.

Short or pre-implementation trials are one way to assess the acceptability and use of MNP. Such trials test communication and training materials over a defined period of time (for example, a 30-day trial), with a sample of the intended community, prior to implementation of the program. This strategy can also be used to evaluate and decide on the different mediums or approaches considered. Most notably,

Figure 4. Example of an image refined based on the results of the pre-testing process

This image was taken from an MNP program implemented as part of the emergency response to Cyclone Sidr in Bangladesh.

trials can provide a comparative basis for decision-making, and reveal necessary changes to the intervention prior to implementation.

3. Implementing the communication strategy

The importance of training as part of the BCI strategy is noted earlier in this manual (see the section on **Delivery**). The first step in the implementation process is to train health staff, community health volunteers, and any other individuals delivering the messages or handing the product to the target population. These individuals are in charge of delivering the messages and, in most cases, MNP to the caregivers, mothers, and fathers of the children who are to receive the MNP. Hence, ensuring that training is carefully organized and carried out is key to the adequate dissemination of the messages, and the successful implementation of the strategy (see **Text box 4**).

The delivery of messages for the promotion of MNP can take place at a variety of places and in a number of circumstances, including distribution points, mothers' group meetings, and household visits. Depending on the strategy developed, other delivery mechanisms might include radio spots, printed advertisements, pamphlets, and religious gatherings.

4. Assessing effectiveness and making refinements

The periodic assessment of the effectiveness of the BCI is necessary to ensure the sustained success of the program. The monitoring of BCI indicators is an essential component of quality assurance activities, and must be considered in the internal and external monitoring plan which is developed for the program (See **Activity 4. Quality**). For this purpose, behavior change-specific indicators should be developed (for example: exposure, knowledge, attitude, and practice [KAP] change, adherence). Ideally, all BCI-related information should be monitored periodically (for example, once every three to six months). The results should inform and set in motion activities which reinforce any problematic concepts or issues via refresher training or adapt any messages in a timely fashion.

Text Box 5. Project Fortidom from Madagascar: The 4 Ps of Social marketing

The Fortidom project in Madagascar, a pilot project in two districts targeting approximately 15,000 children aged six to 23 months, uses social marketing, an innovative behavior change communication strategy, and the distribution of a locally branded micronutrient powder (MNP) through community-based networks via trained community health workers (CHWs) in rural areas and through social franchising channels – such as private clinics in urban zones.

Social Marketing: The 4 Ps
As part of the pilot, Population Services International, Madagascar (PSI/M) developed a social marketing strategy which utliized the full marketing mix (the '4Ps': Product, Place, Price and Promotion) to ensure sustainable access to MNP among project beneficiaries, and encourage long-term IYCF-related behavior change. The pilot demonstrated that social marketing of MNP is a viable option in order to build towards the long-term sustainability of the project, although donor investments are necessary to ensure equity, quality, and optimal access.

Product: Using findings from formative research on mothers' preferences and experiences, CHWs and providers promote a flexible regimen of MNP and suggest a scheme of three boxes of 30 sachets (90 sachets) every six months (180 days).

A local brand name was designed: Zazatomady, meaning "vivid/alert" child in Malagasy. Qualitative research confirmed that the chosen positioning was appealing to mothers, and would help convince them to try the MNP.

Place: In order to maximize access to the product across the selected areas, MNP are distributed through a combination of community-based distribution (CBD) and franchised private clinics' channels.

Price: An affordable pricing structure for caregivers with motivating margins for distribution intermediaries was introduced, ranging from $0.10 to $0.47 for one box of 30 sachets.

Promotion: A communication plan was developed which details communication objectives, key messages, channels, and tools, in line with the national communication strategy for IYCF/MN, ensuring that caregivers receive targeted messages on optimal infant feeding practices with a focus on food diversification. A mix of mass media (radio spots), mid media (mobile video unit sessions), and interpersonal communication (IPC) is used, together with trade marketing activities (i.e., point-of-sales materials for CHWs and providers) to disseminate messages and promote product use. CHWs distributing MNP conduct home visits and cooking demonstrations with locally available foods, and facilitate group meetings.

BCI Materials developed

The labeling on the packaging is one of the most important materials for you to consider when designing your BCI strategy. There are two main components to labeling on the packaging: The sachet and the box. The sachet (individual unit) provides limited space to capture information and, therefore, only basic information can be included. However, the sachet label provides information at the critical point of use. This information might be the only information the caregiver receives – information leaflets can get lost or may not be received, while sachets sometimes become separated from their box. It is therefore important that the sachet contains the critical information and steps for appropriate use which you wish to communicate. The box (traditionally designed to hold a monthly supply of sachets) can accommodate more information, and can therefore include additional information beyond what is found on the sachet. The box should reinforce the key messages on the sachet.

With regard to the labeling on the packaging, there are two possible options to consider in selecting the most appropriate packaging: **1)** using a standard sachet design, or **2)** creating a local identity for the product. For very small programs, emergency situations, and programs which aim to start distribution quickly, standard packaging is recommended. Developing an adequate local MNP image and packaging is a lengthy process, which merits significant efforts, including extensive formative research and multiple rounds of revisions. When the time and resources required to develop local packaging are not acknowledged and planned for, this usually results in significant delays to the purchasing and production schedule. In most cases, MNP with generic packaging can take approximately 10 to 12 weeks to arrive after an order has been placed. A product for which customized packaging has been designed can take an additional 11 to 15 weeks.

A product label on sachet or box should:

- **Not** give instructions on how to feed the product to infants under six months of age
- **Not** include pictures of babies less than or appearing to be less than six months of age
- **Not** include phrases such as 'from the start', 'for the whole family' or 'first stage'
- **Not** recommend that the product can be fed by bottle, or show a picture or other image of a feeding bottle
- **Not** advertise or otherwise promote the product to pregnant women, unless the advertisement has a target child of over six months, and unless the message is clear that the product is only for children older than six months
- **Not** advertise or otherwise promote the product to mothers or caregivers of children less than six months, unless the advertisement has a target child aged over six months, and unless the message is clear that the product is only for children older than six months.

Do not state the following:

- MNP improve growth
- MNP give energy
- MNP make children smarter/more clever.

It might be permissible to mention that vitamins and minerals are important contributors to children's healthy growth and development, including cognitive development, but that vitamins and minerals do not contain or give energy (calories).

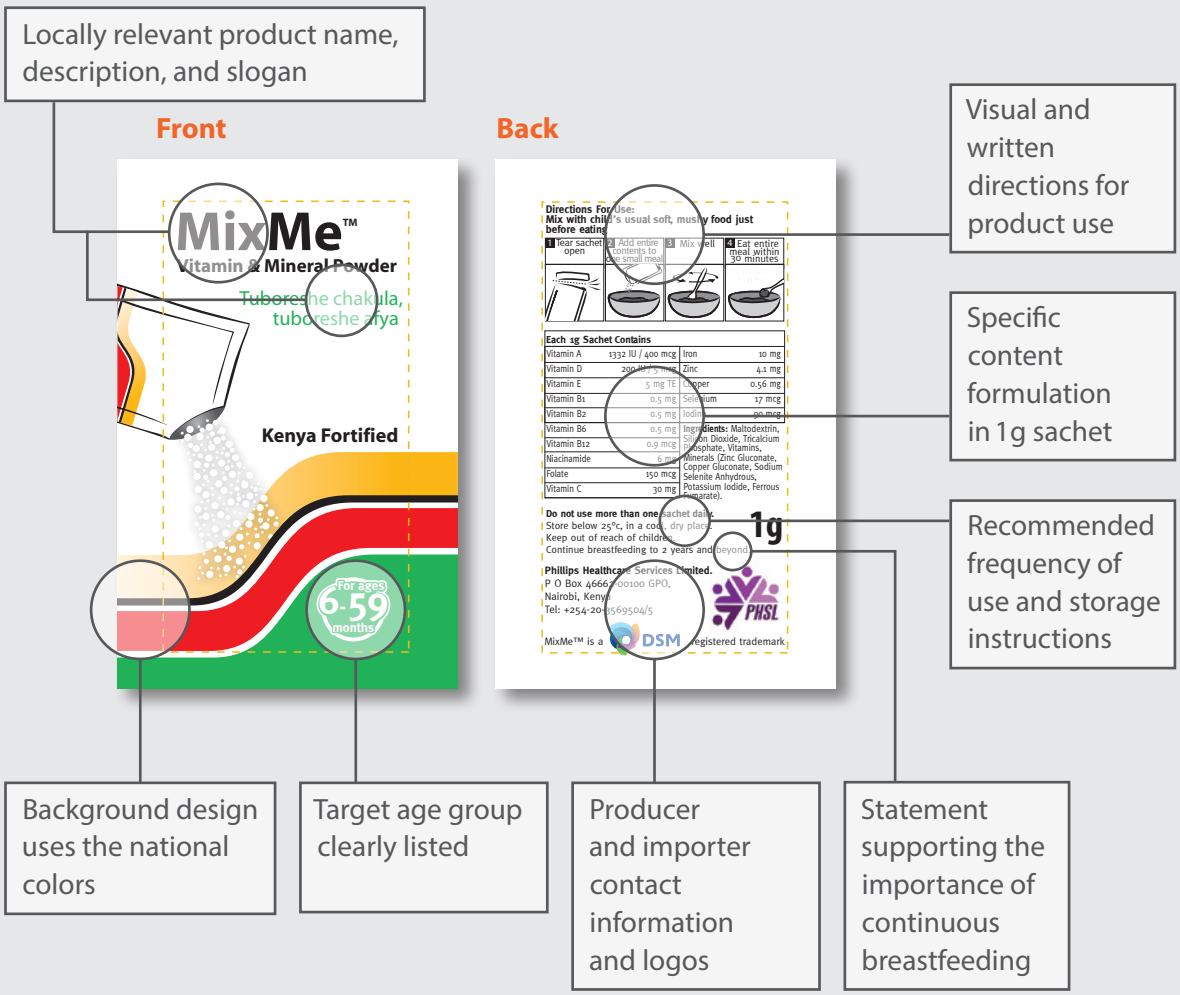
Images

When using images on the box or sachet, children should be avoided. If an image of a child is used, it should be free standing (not being held or sitting). This ensures that there is no ambiguity around the child's age, as no child under six months of age would be able to stand on its own. Another strategy is to depict children with teeth, as few children have teeth before six months of age.

Although space on the sachet is limited, **Text Box 6** shows some of the key features that should be present on the sachet:

- A locally relevant and appropriate product name
- Clear messaging that the product is not for use by children under six months of age
- A statement supporting the importance of continued breastfeeding to two years of age and beyond
- A strategic slogan for promotion
- Text printed in the language best known to the beneficiaries
- A text specifying the age range of the intended user
- If images of children are used, they should be older than six months
- Directions for use, ideally with pictograms showing steps for the appropriate use of MNP
- Composition: A list of vitamins and minerals and their amount
- The frequency of recommended use
- The expiration date
- Storage instructions
- Logos of the agencies involved in the distribution (optional)
- Producer and importer information.

Text box 6. Kenya sachet design



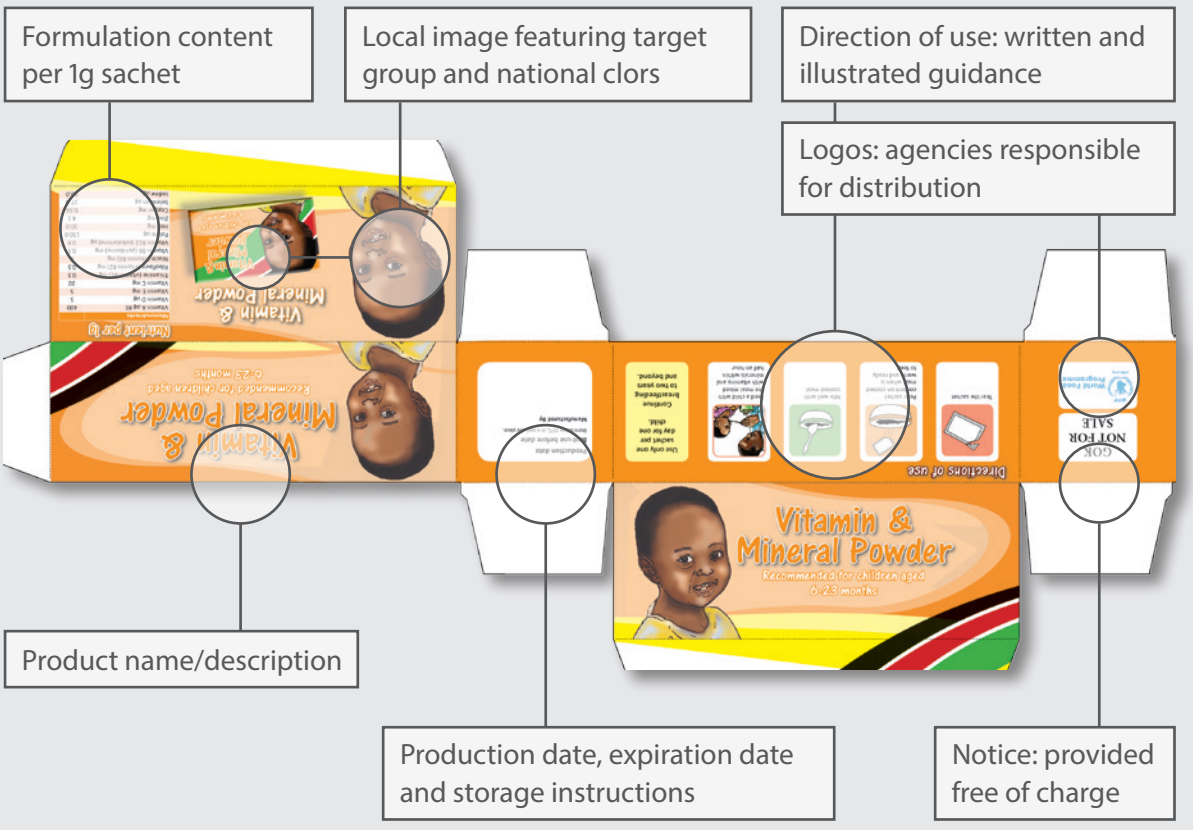
There are no official guidelines about the information to be featured in a locally designed box. However, the same content considerations for the sachet apply to the box (**Text box 7**).

As each country may have very different labeling requirements, local requirements should be known and adherence ensured.

Text box 7. Kenya Case Study: Carton Box Design

The carton box design illustrated below provides a suitable example of all the considerations to be taken into account at the time of designing an MNP box. These include, for example: Logos, local name, expiration date, recommended frequency of use, and storage instructions, among others.

The content on the box, designed for MNP distribution by the Government of Kenya (GoK), includes information adopted from the HF-TAG programmatic guidance brief, and was informed by the Breastmilk Substitutes (Regulation and Control) Act 2012 and the Kenya MNP standards. In preparation for this program, various carton box and sachet designs were developed and reviewed by the MNP Technical Working Group before being pre-tested in the Kajiado pilot project. The final design was selected based on the results of the pilot, which indicated that most caregivers preferred the colors and sketch of the child presented below.



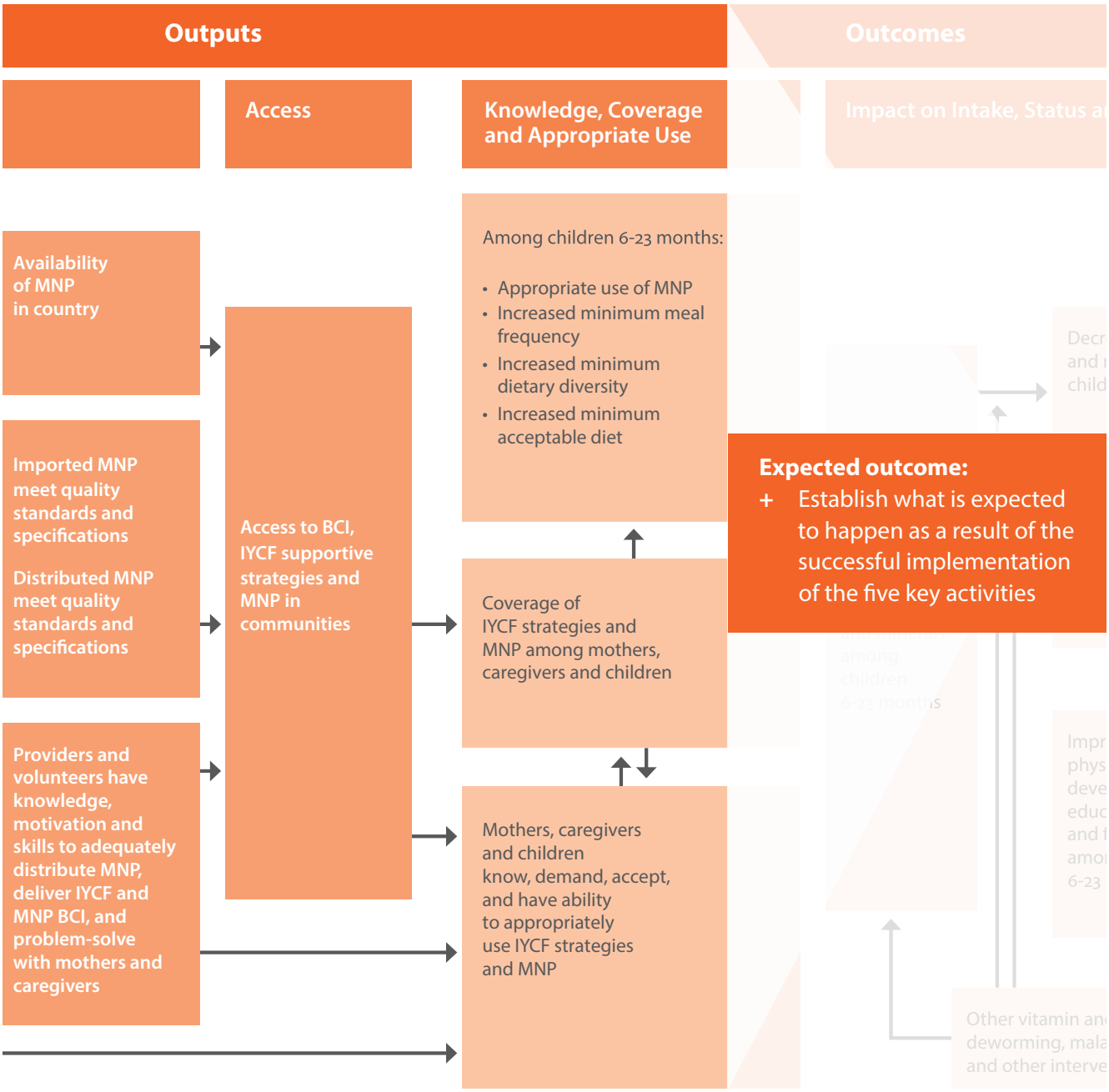
In addition to the MNP box and sachet, other materials and channels are used to promote MNP use and communicate the behavior change intervention, concepts, and key messages. The most appropriate channels to reach the target audience have to be selected based on the characteristics of the local population. Examples of commonly used channels include: Face-to-face orientations, group discussions, mass media, community activities, posters, and other visual advertisement or a combination of forms. It is important to conceptualize the focus of each of the channels (for example, channels to provide information versus channels that reinforce the key messages) prior to producing the different materials (**Text box 8**).

Text box 8. Case study: Poster design

The example from Kyrgyzstan describes in writing and illustrates the behaviors expected from mothers:

1. Provide adequate nutrition
2. Add MNP to the child's food
3. Use the product regularly
4. Deal with sickness or adverse effects

Outputs


Outputs
Outcomes
Access
Knowledge, Coverage and Appropriate Use
Impact on Intake, Status a
Availability of MNP in country
Imported MNP meet quality standards and specifications
Distributed MNP meet quality standards and specifications
Providers and volunteers have knowledge, motivation and skills to adequately distribute MNP, deliver IYCF and MNP BCI, and problem-solve with mothers and caregivers
Access to BCI, IYCF supportive strategies and MNP in communities
Among children 6-23 months:
• Appropriate use of MNP
• Increased minimum meal frequency
• Increased minimum dietary diversity
• Increased minimum acceptable diet
Coverage of IYCF strategies and MNP among mothers, caregivers and children
Mothers, caregivers and children know, demand, accept, and have ability to appropriately use IYCF strategies and MNP
Expected outcome:
+ Establish what is expected to happen as a result of the successful implementation of the five key activities

Defining outputs

Outputs are the direct results of program activities, and can be types, levels or targets of services or products to be delivered by the program. They are the project deliverables for which the project can be held accountable. For example, 'outputs' indicate if a program was delivered to the intended audiences in the intended 'dose' and in the expected time period, including the number of MNP distributed, classes taught, meetings held, or materials produced and distributed. Outputs could also include program participation rates, or the hours of each type of service provided.

The outputs listed in the IYCF/MNP program logic model can be categorized in two general categories:

1. Outputs related to the supply and quality of MNP and IYCF strategies:

- Availability of MNP in country

Example: XX million MNP sachets are available in warehouse in the program area

- Imported MNP meet quality standards and specifications

Example: MNP are delivered with a certificate of analysis on a monthly basis

- Distributed MNP meet quality standards and specifications

Example: The vitamins and minerals in the MNP are stable after being stored for X number of months under field conditions

- Providers and volunteers have the knowledge and motivation to adequately distribute MNP, deliver IYCF and MNP behavior change interventions, and solve problems with mothers and caregivers

- Beneficiaries have increased knowledge of micronutrient powders and have significantly improved nutrition practices

- Providers/health volunteers have a good understanding of the needs of the target group, and have working methods to encourage adherence and long-term use of MNP.

2. Outputs related to access among participants:

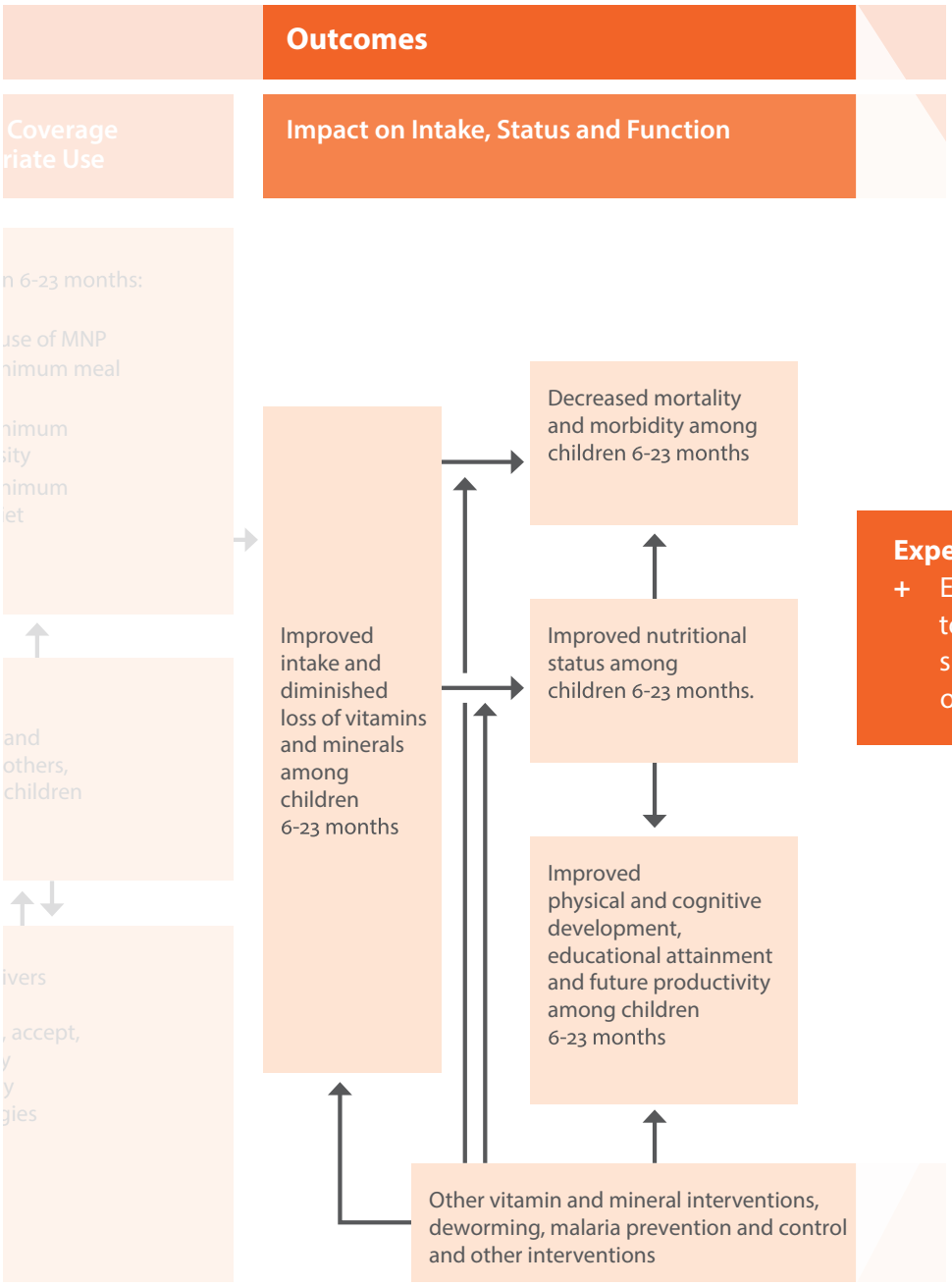
Access to BCI, IYCF supportive strategies, and MNP in communities

Examples:

- *(All programs)* Social marketing campaign has been implemented in all program areas, and messages are widely disseminated
- *(Integrated cash transfer and MNP program)* Households participating in food/cash for work activities have access to MNP through general food distribution.
- *(Market distribution of MNP)* MNP are available at local outlets such as pharmacies and small stores.

Additional information on defining output indicators can be found on the HF-TAG *Manual For Developing and Implementing Monitoring Systems For Home Fortification Interventions* (available at: **www.hftag.org**).

Outcomes


Outcomes
Impact on Intake, Status and Function
Improved intake and diminished loss of vitamins and minerals among children 6-23 months
Decreased mortality and morbidity among children 6-23 months
Improved nutritional status among children 6-23 months.
Improved physical and cognitive development, educational attainment and future productivity among children 6-23 months
Other vitamin and mineral interventions, deworming, malaria prevention and control and other interventions
Expected outcome:
+ Establish what is expected to happen as a result of the successful implementation of the five key activities

Defining outcomes

The MNP program logic model defines short-term, intermediate, and ultimate outcomes that are related to expected changes in the nutritional intake and health and nutritional status of participating children. Outcomes can be specific changes in program participants' knowledge, attitudes, behaviors, motivation, skills, decision-making, health and nutritional status, function, or other effects of the intervention. Outcomes are expected to result from program activities, and are often expressed at an individual level. Outcomes can occur during or after an intervention, may be intended or unintended, and may be positive, negative, or neutral. When developing program **outcomes**, it is useful to ask: What changes do we expect to see in the targeted beneficiaries?

The generic project logic model presented above lists a series of interrelated outcomes related to impact on intake, status and function, specifically:

Improved intake of vitamins and minerals among children aged six to 23 months: The main expected outcome, directly related to the proper and successful implementation of the intervention, is an improved nutritional intake due to better complementary feeding practices, and the additional nutritional gap met by the MNP, therefore resulting in a reduction in micronutrient deficiencies. In turn, it is expected that children's improved nutritional intake leads to other secondary, usually longer term, outcomes, including:

- *Decreased mortality and morbidity among children aged six to 23 months:* it is estimated that 35% of children under the age of five die due to nutrition related factors. It is therefore a feasible assumption to establish that, if an improvement in the intake of vitamins and minerals is achieved, an impact in the rate of survival and a decrease in health afflictions can be observed, therefore resulting in decreased mortality and morbidity rates.

And

- *Improved physical and cognitive development, educational attainment and future productivity among children six to 23 months:* healthy, well-nourished children have a better likelihood of enjoying proper physical and cognitive development, staying in school, and leading productive adult lives.

An additional outcome listed in the logic model is *Other vitamin and mineral interventions, deworming, malaria prevention and control and other interventions.* This outcome is expected to support the expected outcomes from the use of MNP. As mentioned before, the most successful MNP programs are integrated into an existing infant and young child nutrition (IYCN) strategy. It is important to recognize that numerous factors influence the nutritional status of children; thus, other interventions will also contribute to the specific desired outcomes of your home fortification intervention.

Additional information on outcomes can be found on the HF-TAG *Manual for Developing and Implementing Monitoring Systems For Home Fortification Interventions* (available at: **www.hftag.org**).

2 Chapter 2

In this chapter:

- **Step 5:** Planning for implementation
- **Step 6:** Implementation
- **Step 7:** Monitoring
- **Step 8:** Evaluation
- **Beyond the Eight-Step Logic Models:** Additional Programmatic Aspects to Consider During the Planning Process
- Conclusion
- Works Cited

Step 5: Planning for Implementation

Expected outcome:

+ Consider and list all activities required for the implementation of the program, assign a realistic time estimate to accomplish them, and develop an approximate budget in a comprehensive program implementation plan

Once the project logic model has been developed (**Step 4**), all specific activities required to successfully implement the program should be articulated in a project implementation plan (PIP). A PIP is a written document which clearly and succinctly establishes the sequence in which project-related activities will take place, and specifies a realistic time period to complete each activity.

A very common mistake when planning for the implementation of an MNP program is to underestimate the time required for planning, carrying out, and completing each preparatory activity. Based on real program experience, it takes eight to 12 months on average for the initial program design and planning process to be completed, including approvals, country-specific labelling of MNP, forecasting and shipment and customs clearance. Other common oversights are:

- Overlooking the budgetary aspect of program planning, and
- Not identifying the individuals responsible for carrying out each activity.

A comprehensive PIP should therefore incorporate a series of key activities to be carried out, including the human and financial resources required, budget estimates, and the specific roles and responsibilities of key individuals who are identified as being responsible for the program.

In addition, a risk identification and mitigation strategy can be developed alongside the PIP, which clearly identifies those activities which might be associated with risks (for example, factors that might affect both time and budget, such as review and importation processes). Other potential risks may be external to the program, but it is equally important to identify and consider implementation and mitigation strategies. External factors include those that might impact the ability to implement the program, for example elections, social unrest, or other factors.

Although the list of specific activities to be carried out may vary depending on the local context, a generic PIP is shown below for general reference. Each project should have a unique PIP, which has been specifically developed with the local context in mind.

Table 3. Generic MNP Program Implementation Plan (PIP)

#	Activities	Responsibility Ideally assigned to specific individuals a nd, when not possible, list organizations	Year 1							
			Quarter 1				Quarter 2			
1	**Project Inputs**									
	Stakeholder mapping and advocacy strategies	Example: *National Nutrition Institute*								
	Map resource needs (human and financial)									
	Form steering project team									
	Identify necessary permissions and approvals (consider imports, distribution, etc)									
2	**Project Activities**									
	Develop Logic Model	Example: *MNP Technical Working Group*								
	Policies									
	Develop integrated IYCF/MNP plan of action									
	Positioning of MNP in country									
	Advocacy plan for MNP legislation									
	Production and Supply									
	Select product composition and proposed dosing regimen									
	Identify and forecast supply (# of sachets needed)									
	Packaging development (when local image to be designed)									
	Identify potential suppliers and start tender process									
	Production, transport, and customs clearance (when applicable) of MNP									
	Production of BCI and communications materials									
	Delivery									
	Identify partner and sign agreement, when applicable									
	Identify delivery platform and supply chain									
	Training of community workers in distribution and promotion of MNP (cross listed as BCI)									
	Develop an incentive strategy									
	Quality									
	Identify partner for monitoring (and evaluation, if to be conducted) when applicable									
	Outline a monitoring plan									
	Develop survey design, adherence monitoring system, monitoring tools									
	Household surveys on coverage, adherence, acceptance, and storage, impact assessment can be included									
	Behavior Change Intervention (BCI)									
	Identify a partner with expertise in BCI and sign agreement, when applicable									
	Develop formative research plan									
	BCI training material and visual aids for appropriate use of MNP and supporting materials developed									
	Training of community workers in distribution and promotion of MNP									
3	**Implementation**									
	Pilot Phase									
	Based on results from pilot phase, make necessary adjustments to intervention prior to official program launch									
	Program launch (develop PIP for Year 2)									

									Budget List the estimated financial resources required	**Human Resources** List expected human resources required	**Potential risks/ barriers** Note any known or possible challenges to execution
	Quarter 3				**Quarter 4**						
									Example: *contract short term consultant*	Example: *One person, half-time, for three weeks*	Example: *multiple ministries, organizations and individuals working on nutrition-related projects in different locations and at different scale. Must be careful to include all and describe activities, in order to determine if they are* adequate or not.

Project inputs

Stakeholder mapping and advocacy strategies: Ensure that all potential stakeholders are considered, and adequate advocacy strategies are devised to engage them.

Map resource needs: Financial needs are a primary consideration in project design; however, human resources are also vital and are often overlooked. Both human and financial resources need to be considered in the very early stages of program planning.

Form steering project team: A small team of individuals (a maximum of four to six) must be convened who are committed to the project and to seeing through all the steps involved in the project cycle. This group is responsible for guiding the planning process. Ideally, each team member has a few responsibilities assigned to them and reports to the rest of the group. Large steering project teams are discouraged as they may actually delay the initial groundwork due to coordination challenges. The steering committee is encouraged to call on other participants and experts, and convene additional individuals as it sees fit.

Identify necessary permissions and approvals: One of the most common bottlenecks associated to timely program implementation is the lack of necessary permissions and approvals. Hence, it is recommended that the steering committee identify all potential necessary permissions and approvals which are necessary at the very start of the planning process. These include, for instance: Product clearance, ethical approval for monitoring and evaluation if the monitoring or evaluation plan includes measuring biochemical indicators, permanent government product clearance, and in-country registration by the producer.

Project activities

Develop logic model: A logic model is a one-page visual depiction of the program that outlines the relationships between program resources, activities, and expected outcomes (please refer to page 8 of this manual). Developing a logic model is the first step to be taken prior to conceptualizing all the project activities. Consensus should be reached among the steering project team and key stakeholders about the intended actions and components of each of the activity categories (Policies, Production and Supply, Delivery, Quality and BCI).

Policies

Develop integrated IYCF/MNP plan of action: IYCF and MNP programs are ideally integrated, since both interventions utilize common personnel, capacity, and infrastructure at national and local levels. The plan should specify the expected scale of the MNP program.

Positioning of MNP in country: It is necessary to establish the target population and objective of the program in order to position the MNP program. Target groups for MNP distribution include those which have inadequate intakes of micronutrients, or are at high risk of micronutrient deficiencies. The period of highest vulnerability is six to 23 months of age, when nutrient needs are highest, and food variety and quality are limited. Children 24 to 59 months of age may also be at high risk.

Advocacy plan for MNP legislation: All stakeholders and their potential interest in the program should be considered in the advocacy plan. An MNP value proposition should be crafted which resonates across all stakeholders and initiates a positive call to action.

Production and Supply

Select product composition and proposed dosing regimen: Discuss and agree on the adequate product composition (HF-TAG supports the standard 15-MNP composition, but specific situations might require a different option) and dosing regimen. Identify and forecast supply (number of sachets

needed): Identify and forecast supply needs over the course of the project, based on the coverage and distribution targets; agree with the providers on delivery cycles.

Packaging development: If a local name and image is to be developed, the plan needs to take account of the time and resources required to do this.

Identify potential suppliers and start tender process: The overall tender process can take up to 15 weeks once a supplier has been identified and selected. To avoid delays in the implementation of the program, this aspect needs to be considered in the timeline.

Production, transport, and customs clearance (when applicable) of MNP: The estimated 15 weeks for the tender process includes production and transport, but not customs clearance. When customs must be cleared, the necessary permits must be in place prior to the arrival of the product in country; otherwise, delays accruing to several weeks can result.

Production BCI and communications materials: While the design of communication materials is the most time-consuming task related to the development of materials, obtaining budget approvals, ordering, printing, and receiving all finalized materials should not be overlooked.

Delivery

Identify partner and sign agreement (when applicable): If a partner or independent organization is to manage delivery, an agreement should be set up which establishes the conditions and outlines the process and requirements.

Identify delivery platform and supply chain: The most successful MNP programs are integrated into existing IYCN strategies. MNP distribution can be done through public or market channels, and the supply chain will vary accordingly.

Training of program staff and community workers in distribution and promotion of MNP (cross listed as BCI): Identify staffing and training needs to implement the program, taking into consideration the abilities and technical level of each.

Develop an incentive strategy: Incentives are particularly appealing in market-based distribution strategies, but can be incorporated into any MNP delivery platform. Adequate motivation tools should be identified and considered in the delivery strategy.

Quality

Identify partner for monitoring (and evaluation, if to be conducted) when applicable: Technical expertise is required to develop a monitoring plan and implement it. It is necessary to consider the time and resources required to identify and select a partner to carry out the intervention's monitoring component.

Outline a monitoring plan: Develop an internal and external monitoring plan before the start of the intervention. The primary purpose of monitoring data is to ensure that the program is being implemented, and to enable program managers to assess its performance, identify problems, and use the data to improve programs in a timely fashion. Invest the time necessary into ensuring that the monitoring plan is as comprehensive as possible. As a component of the monitoring plan, develop survey design, adherence assessment tools, a monitoring system and tools. In addition to the monitoring plan, the actual tools required to implement the tool also need to be developed. Concrete examples can be found in the HF-TAG Manual for developing and implementing monitoring systems for home fortification interventions.

Household surveys on coverage, adherence, acceptance and storage, impact assessment can be included: Additional tools and surveys can be designed to collect as much information as is useful to program implementers. Concrete examples can be found in the HF-TAG Manual For Developing and Implementing Monitoring Systems For Home Fortification Interventions (available at: **www.hftag.org**).

Behavior Change Intervention

Identify a partner with expertise in BCI and engage them contractually, when applicable: Technical expertise is required in developing a BCI plan and implementing it. The time and resources necessary to identify and select a partner to carry out the monitoring component of the intervention must be considered.

Develop formative research plan: Formative research is an integral part of a successful BCI plan. An adequate amount of time should be invested in this process in order to truly capture the needs and preferences of the population, and develop guidance that reflects local needs and idiosyncrasies.

BCI training material and visual aids for appropriate use of MNP and supporting materials developed: A communication strategy is based on the results of the formative research; both training and education and communications materials must be developed prior to the start of the intervention, and with sufficient time to produce and distribute them.

Training community workers in distribution and promotion of MNP: Ensure that sufficient time is allotted to the adequate training, as well as refresher training of all management, providers, community health workers, volunteers or any other individuals to be involved in the implementation of any component of the BCI strategy.

Responsibilities

In addition to outlining all the activities to be carried out, the PIP is also an ideal tool to use to assign responsibilities (second column, **Table 3**). In the PIP model provided, a person or organization must be assigned as being responsible for the execution of each activity. In addition, by having the responsibilities stated in the plan and shared with the steering project team, a mechanism is created for both accountability and follow-up.

Budget

Generally, the most significant cost drivers of an MNP intervention are the product (specifically packaging, which represents 75% of the actual cost) and the development and implementation of the BCI strategy and monitoring strategies. While each MNP program is unique, **Table 4** below provides a rough illustration of budget considerations which should be taken into account. It is important that these are considered in the context of each MNP program.

In addition, in order to assist in the budgeting process, a costing tool was recently developed by UNICEF. This tool can be accessed at: **www.hftag.org/resources/toolkit/**

Table 4. MNP Program budget considerations

Budget line item	Description	Cost drivers
1. Program Design and Inputs		
Formative research	The cost associated with performing the necessary formative research to inform and design your distribution, implementation and delivery of the MNP program	Formative research team (per diems, daily rates), small amount of generic MNP sachets, transportation costs to conduct qualitative research (fuel and drivers)
Human resources	For example, program coordinator, local designer, BCI and monitoring experts, nutritionist, and data collection and input. Implications of this line item vary depending on the program activities outlined, and the realities of working in the terrain in different contexts	Duration of MNP program, existing expertise and locally available resources
2. Procurement of Product		
Product	Cost of the total amount of MNP product needed for the program	Target population (age group in a certain area), expected coverage, frequency of dosage (x number of sachets/6 months), expected duration of program
Shipping costs	Cost of sending the product from the manufacturing facility to the country. These costs vary between manufacturers and depend on the distance, shipping method selected, etc	Form of shipment (for example, air shipment is faster but more expensive than sea freight)
Import costs	Any costs associated with getting the product into the country	Clearance, customs duties
3. Supply and Distribution of Product		
Transportation and distribution	Costs associated with the distribution of the product from the national port of entry to regional and community level hubs. While costs vary greatly between programs, this can often be linked to other distribution mechanisms and the storage of other health-related products	Number of sachets that can fit in one vehicle, fees for vehicles, drivers, petrol, number of deliveries to a community distribution point
Storage and handling	Costs associated with building or renting adequate storage facilities for the MNP	Access to adequate cool, dry storage, number of storage locations needed
4. Program Delivery and BCI		
Training	Costs associated with training MNP distributors (health care professionals, village health workers), and end-users (mothers, fathers)	Consider: per diems, transportation, lunch, renting facilities costs for training each person (both deliverers of the training and end-users), frequency of refresher training
Communication materials	Costs for information, education and communication materials (posters, pamphlets, cooking demonstrations, radio announcements, dance troupes, videos, etc)	Costs will vary greatly depending on the different types and frequency of communication and education activities
5. Monitoring of Program Activities		
Monitoring	Human resources needed to monitor the supply, delivery, knowledge, adherence, practices of MNP use at household level and the resources needed to manage risks and corrective actions	Type of monitoring system, frequency of monitoring, development of monitoring tools, human resources needed to monitor, record, analyze, and perform corrective actions
Supportive supervision	Human resources to assist staff in improving work performance and quality	

Human resources

Human resources represent an important, yet often overlooked, component of program planning. Because they are needed at all stages of the process, they need to be carefully identified and considered when planning the implementation plan. For this reason, the PIP presented in **Table 3** includes a column where all the human resources requirements for each activity should be listed. It is recommended that this column be included and human resources considerations clearly outlined in all PIP, regardless of the scale of the program.

Potential risks and barriers

Anticipating and addressing risks and potential bottlenecks relating to program planning allows adequate response strategies to be crafted ahead of time. Hence, the inclusion of a section devoted to listing all perceived potential risks and barriers and, ideally, the creation of solutions and alternatives that deal with each potential issue could save time, should these potential holdups occur.

Step 6: Implementation

It should be emphasized that the careful execution of the planning activities mentioned above is, to a great extent, determined by the timely and smooth implementation of the program. Specifically, the development of the logic model – a one-page visual depiction of the program, which outlines the relationships between program resources, activities, and expected outcomes – serves as a roadmap for your planning and execution process. On the other hand, the PIP establishes the specific activities, and human and personal resources necessary, and the expected time required to complete each one of these. If either of the two components is weak, it is likely that different issues will be confronted along the way – particularly as a result of planning process oversights .

Step 7: Monitoring

A separate, in-depth manual is devoted exclusively to this topic. The HF-TAG *Manual For Developing and Implementing Monitoring Systems For Home Fortification* can be accessed at: **www.hftag.org/resource/hf-tag-monitoring-manual-14-aug-2013-pdf/**

Internal monitoring of progress, including specific activities, time, and budget should be reviewed regularly, particularly at critical milestones. This ensures that any adjustments to the program implementation plan, timeline and/or budget are made expediently. Moreover, stakeholders should be informed regularly of progress and course correction choices throughout the duration of the project. Another key indicator which is often overlooked, but should be closely monitored, is the recurrence of adverse effects.

Step 8: Evaluation (optional)

While monitoring is required for every program, evaluation is optional. If you do intend to carry out an evaluation process, it is recommended that you carefully consider your evaluation priorities. Based on this, you should determine which type of evaluation is best suited for your program. Process evaluation reviews the tasks of implementing the program. Summative evaluation can be separated into outcome evaluation and impact evaluation. At the mid-way point, or at the end of a time-limited program implementation period, outcome evaluation is used to gather information on changes in the knowledge, behavior, and attitude of the target audience, correlated to the program objectives. Finally, impact evaluations measure the long-term social and health outcomes among the targeted group; when conducted, they usually take place in coordination with other health programs.

Beyond the Eight-step Logic Models: Additional Programmatic Aspects to Consider During the Planning Process

Management of potential adverse effects

MNP have been developed to provide daily intakes at or below the recommended daily nutrient intake level, and have been safely used by tens of millions of children globally. There is very little evidence for potential adverse effects associated with the consumption of MNP. Most programmatic evidence indicates some transitory gastrointestinal effects when starting consumption (WFP & Sight and Life, 2010). However, one recent study has described an increase in reported diarrhea (by mothers) in children consuming MNP in Pakistan, raising concerns in the scientific community.

Public health policy on MNP has been set through a rigorous analysis of available efficacy and effectiveness data. The latest WHO guideline (2011) on MNP use for children six to 23 months old and the HF-TAG programmatic guidance brief reaffirm that: *Home fortification of foods with micronutrient powders containing at least iron, vitamin A and zinc is recommended to improve iron status and reduce anemia*

among infants and children 6–23 months of age (strong recommendation). Moreover, MNP programs have been implemented to scale in more than 40 countries, and have been shown in program evaluations to reduce iron deficiency anemia.

As with the distribution of any nutritional product, it is important that the monitoring system is set up so that it tracks any concerns with the product and any potential adverse effects. How this is done, and the quality of the information generated from routine monitoring, depends on the local capacity of the implementing organizations. If concerns around adverse effects are expressed in a country, and if routine monitoring is not able to provide timely reports, it might be wise to consider implementing a small study to explore such concerns in the country context.

Planning for package waste management

While the cardboard material which forms the outer packet can be recycled as building material or burned, the individual sachets can only be recycled at an aluminum processing facility. Unless there is a community-wide recycling program, it may not be feasible to collect the sachets and transport them to a processing facility. At a household level, therefore, the best option at this point is to bury empty sachets or to dispose of them with other disposable waste. It is not recommended that sachets are burned, as this must be performed at a very high temperature. At present, the WFP is investigating a better system for MNP waste management.

Specific considerations for implementing as part of emergency response

Micronutrient deficiencies can easily develop, or be made worse, during an emergency. During an emergency situation, general food distribution often does not fully meet the micronutrient needs of young children and other vulnerable groups with higher relative needs. Large-scale MNP distribution in emergency settings is feasible, and has been successfully conducted. However, in order to achieve success, distribution needs to be coupled with a well-executed behavior change intervention strategy.
If your country has already gained experience of the distribution and use of MNP, in an emergency situation the implementation timeline will be shorter, as the initial planning and government approvals will have already been met. Strong partnerships with government and other local partners, such as national and international NGOs, are essential for efficient rollout.

It should be emphasized that the universal sachet design by WFP is available, and will always expedite the procurement process in emergency situations. Additional information on MNP in emergencies is available from the HF-TAG Programmatic Guidance Brief and from the 2007 joint WHO/WFP/UNICEF statement entitled *Preventing and controlling micronutrient deficiencies in populations affected by an emergency*, available online at: **www.who.int/nutrition/publications/micronutrients/WHO_WFP_UNICEFstatement.pdf?ua=1**

Program documentation

Once the program has been developed, it is vital to have an accurate record of the steps taken and considerations leading to the implemented program, including its justification and design. In the midst of other demands, the need to document decisions made and the program development process is often overlooked. However, it is often useful to keep an institutional memory of the process, particularly in the context of high personnel turnover and changing administrations. For this reason, it is recommended that a program brief is prepared where information can be found and used as needed, in order to defend and/or explain the program. This brief should include relevant program details, such as:

1. **Background and justification**
- The magnitude and distribution of the problem in the target populations; evidence that the problem is not being addressed by other programs/strategies
- Justification for the choice of MNP
- A clear statement of program objectives.

2. **General description of the program**
- Delivery channels
- Target population
- Development to BCI

- Product composition, dosing scheme, including frequency and duration
- Procurement (supplies and equipment)
- Budget.

3. Program implementation and management

- Scale of initial implementation and plans for rollout to 'full scale'
- Training and supervision
- Monitoring: Objectives and overview of processes for program feedback and improvement
- Evaluation: If considered, describe objectives for evaluation and communication processes with evaluation team.

Conclusion

Sustainability and the dynamic nature of the program life cycle

Once a program is planned and set in motion, the discussion's emphasis organically matures to focus on the issue of program sustainability. The study of program sustainability was recently addressed by a number of publications and symposiums.

The objective of an effective intervention is to achieve a positive change in the population's nutritional status. However, few discussions ever focus on how to proceed, once the desired objective has been accomplished, or if a more efficient or cost-effective intervention is identified. It is critical to re-cognize the need to think about the probable life cycle of a program early on, including the sustainability of the program, and to underline the vital role of monitoring as a pivotal tool to continually take its pulse, in order to ensure that a program remains relevant – especially as the nutritional status of the population changes. Hence, from the very early stages of planning for the implementation of a program, which is where most users of this manual currently stand, the issue of sustainability should not be overlooked.

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Acknowledgments

In addition to the contributors, Kathy Ho, Maria Elena Jefferds, Eva Monterrosa, Alia Poonawala, Dominic Schofield, Jonathan Siekmann, Ruth Situma and Alison Tumilowicz provided input, feedback, and review of the manual, which we gratefully acknowledge.

We are grateful to the Global Alliance for Improved Nutrition (GAIN) and to Sight and Life for their support.

Disclaimer

The mention of product names and websites in this document does not constitute an official endorsement of the products by any of the agencies or individuals involved in the development of this manual. They are mentioned to provide users of this manual with information on the types of products frequently used in home fortification interventions, and where to obtain further information.

Partners Involved in HF-TAG
- US Centers for Disease Control and Prevention
- Global Alliance for Improved Nutrition
- Helen Keller International
- Micronutrient Initiative
- Sight and Life
- Sprinkles Global Health Initiative
- UNICEF
- UC Davis Program in International and Community Nutrition
- World Food Program