A woman wearing a bright green polo shirt with the word "SPRING" on it and a blue patterned headscarf is smiling and talking to a group of people. She is holding a small book or pamphlet. The setting is outdoors in a rural area with a thatched-roof hut and a brick building in the background. The ground is dirt. There are some people sitting on the ground in the foreground, some wearing headwraps.

Changing how we think about cost-effectiveness of addressing childhood anemia

Findings from the Uganda Micronutrient Powders Pilot

Emily Baker, Costing Consultant
April 11, 2018

Webinar outline

- Introduction to the MNP study in Uganda
- Why do a costing study?
- What are the different cost components?
- What were the costs of MNP distribution?
- How cost-effective were the programs?
- Study implications and next steps



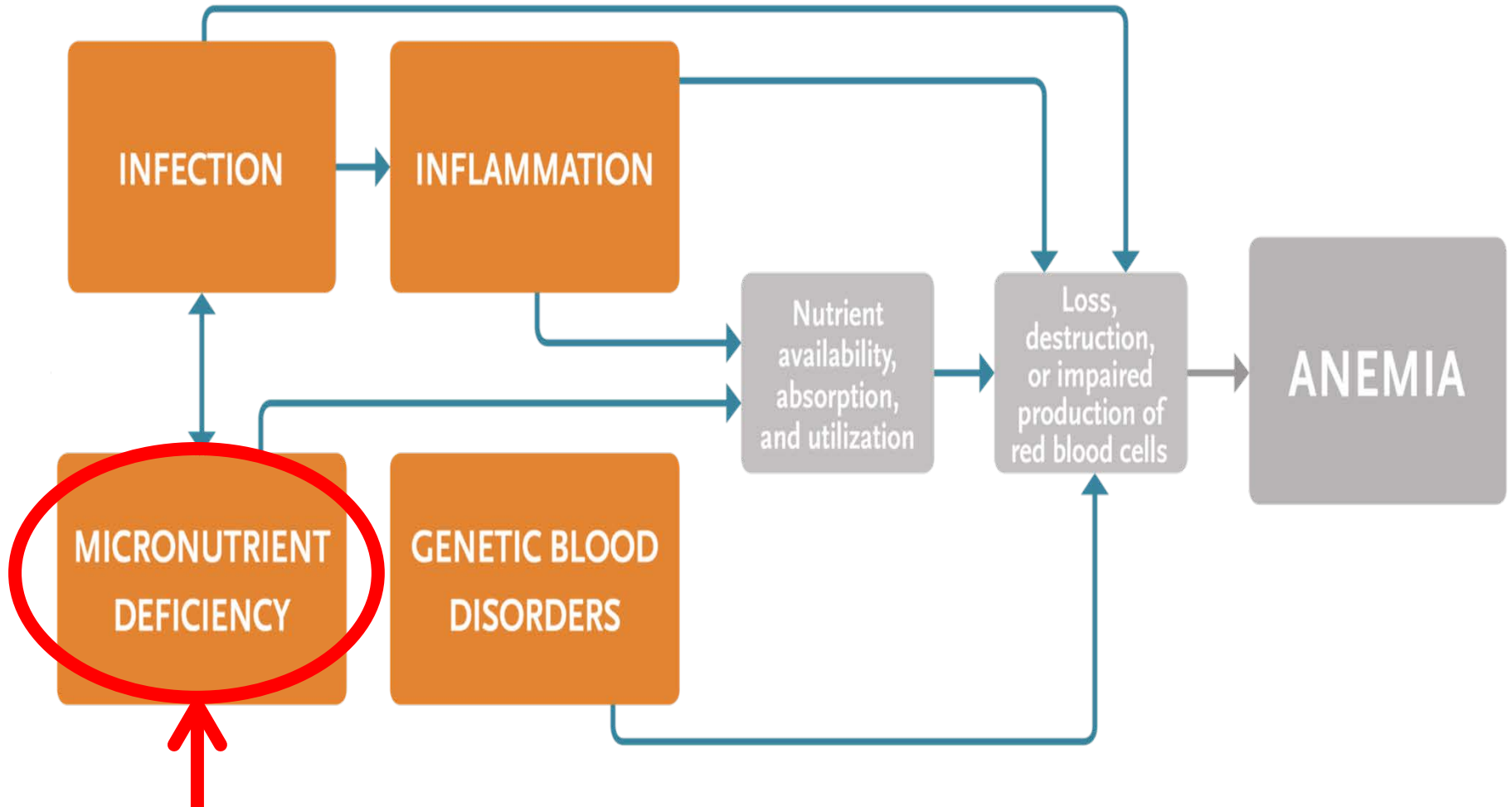
Anemia Prevalence in Uganda



52.8% among children
6–59 months (DHS 2016)

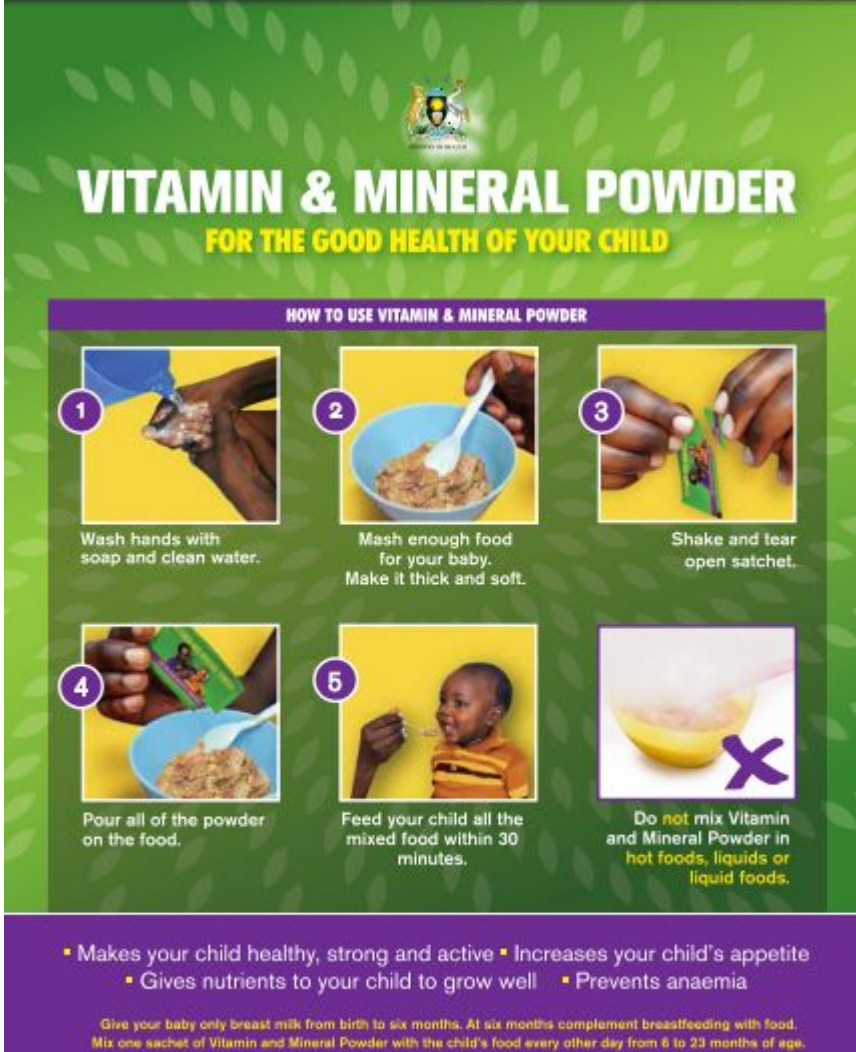


Anemia Causal Pathway



Addressing Nutritional Anemia through Micronutrient Powders

- Reduce anemia and iron deficiency
- Easy to use
- WHO recommended where prevalence of anemia >20%



The infographic features a green background with a leaf pattern. At the top center is the Kenyan coat of arms. Below it, the title 'VITAMIN & MINERAL POWDER' is written in large white letters, with the subtitle 'FOR THE GOOD HEALTH OF YOUR CHILD' in yellow. A purple banner at the top of the central panel reads 'HOW TO USE VITAMIN & MINERAL POWDER'. The panel contains six numbered steps: 1. Washing hands with soap and clean water. 2. Mashing food for a baby to be thick and soft. 3. Shaking and tearing open a sachet. 4. Pouring all the powder onto the food. 5. Feeding the child the mixed food within 30 minutes. 6. A warning not to mix the powder in hot foods, liquids, or liquid foods, accompanied by a purple 'X' over a bowl of yellow liquid. At the bottom, a purple banner lists benefits: 'Makes your child healthy, strong and active', 'Increases your child's appetite', 'Gives nutrients to your child to grow well', and 'Prevents anaemia'. Below this, smaller text provides feeding instructions for infants and young children.

VITAMIN & MINERAL POWDER
FOR THE GOOD HEALTH OF YOUR CHILD

HOW TO USE VITAMIN & MINERAL POWDER

- 1 Wash hands with soap and clean water.
- 2 Mash enough food for your baby. Make it thick and soft.
- 3 Shake and tear open sachet.
- 4 Pour all of the powder on the food.
- 5 Feed your child all the mixed food within 30 minutes.
- 6 Do **not** mix Vitamin and Mineral Powder in hot foods, liquids or liquid foods.

▪ Makes your child healthy, strong and active ▪ Increases your child's appetite
▪ Gives nutrients to your child to grow well ▪ Prevents anaemia

Give your baby only breast milk from birth to six months. At six months complement breastfeeding with food. Mix one sachet of Vitamin and Mineral Powder with the child's food every other day from 6 to 23 months of age.



Although efficacy of MNP has been established...

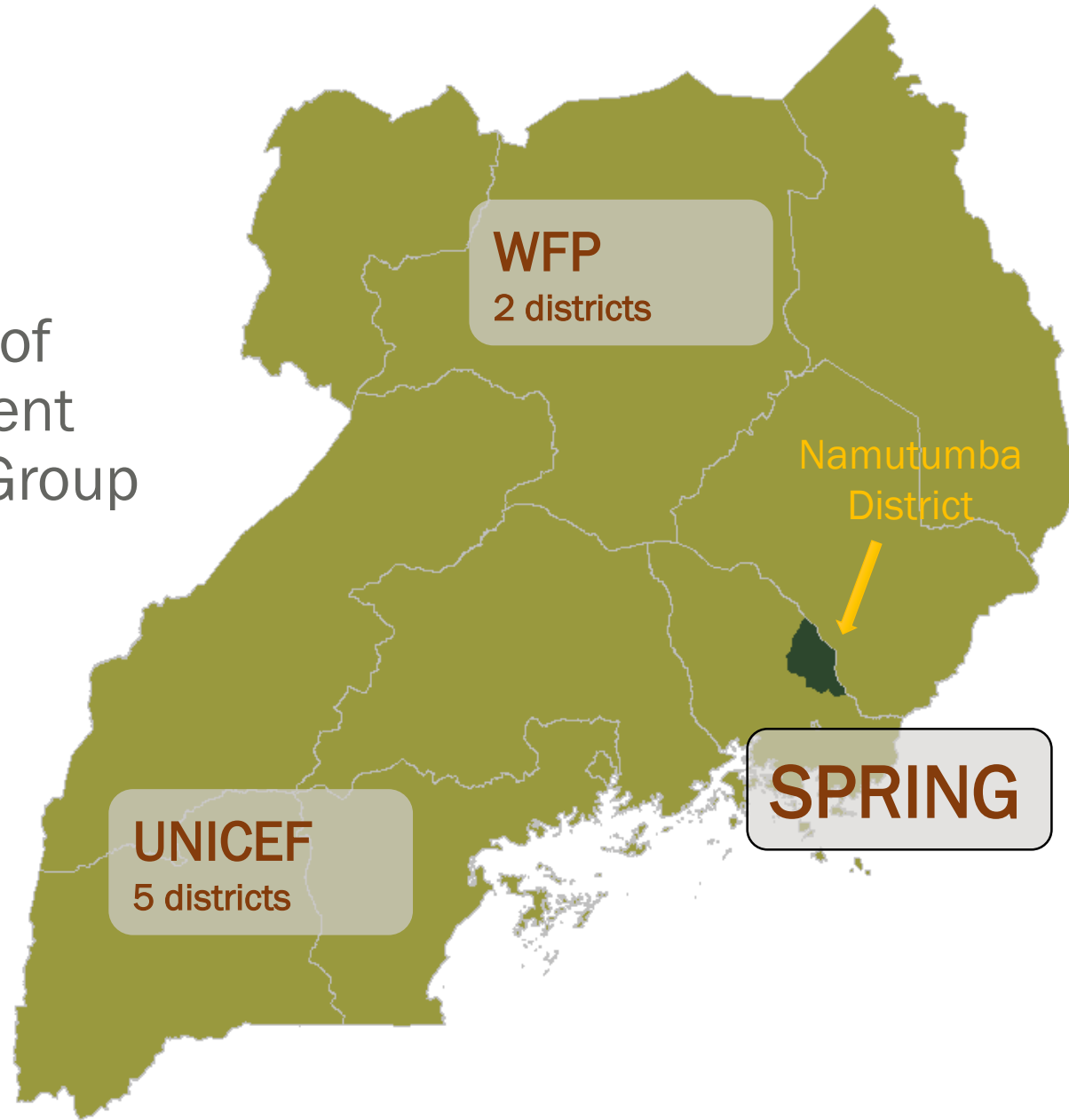


...there is little evidence on how to cost-effectively deliver the product.



MNP Pilot Project

- Led by the Ministry of Health's Micronutrient Technical Working Group



SPRING Costing Research Addresses:

Choice of MNP delivery through...

Health facilities

“facility arm”

OR

Village Health Teams

“community arm”

...to eligible children 6-23 months



Which distribution method results in the best **coverage** and **adherence**?

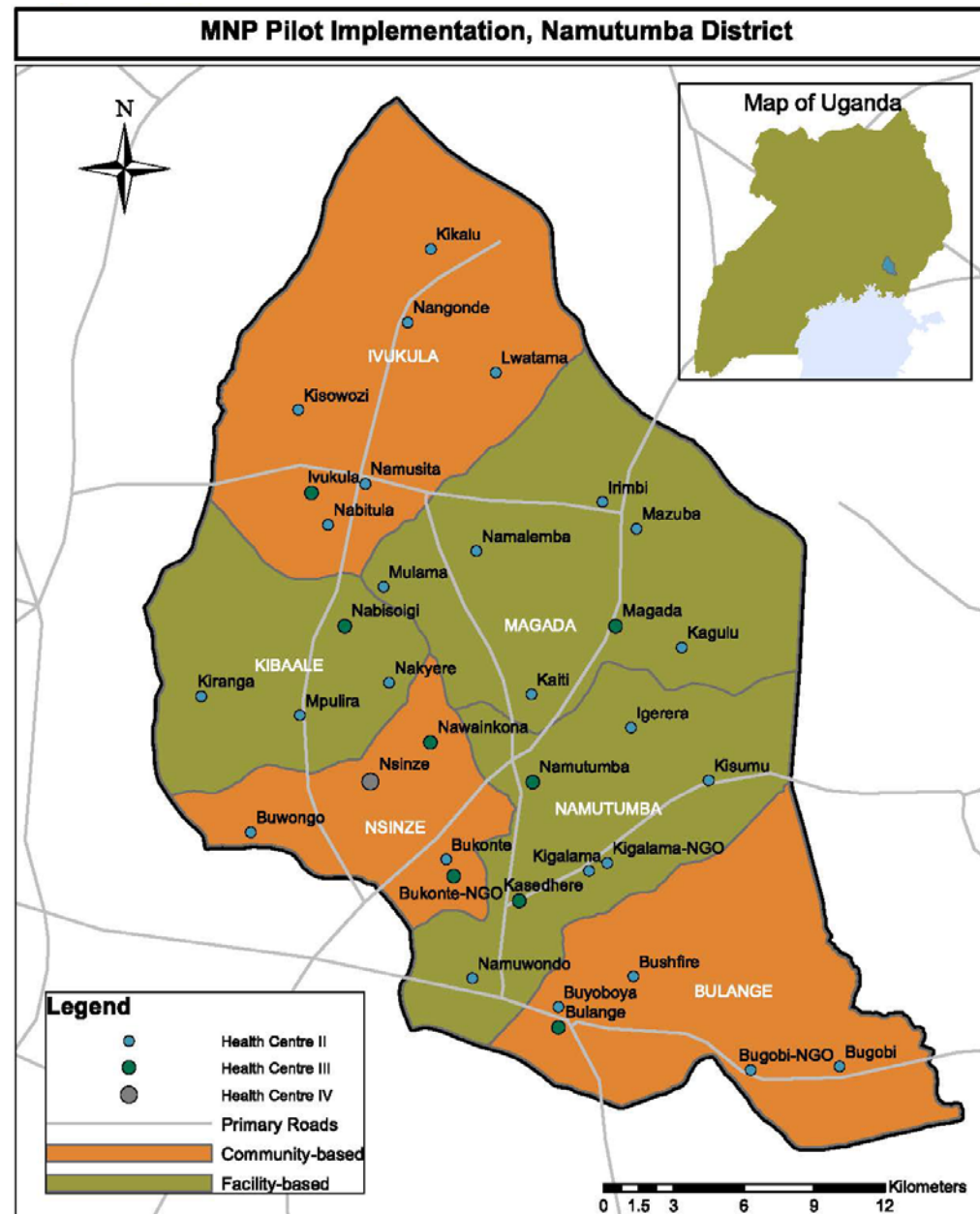
Which distribution method is the most **cost-effective**?

How do different program management structures and **scaling up** affect program costs and cost-effectiveness?



Sub-counties in Namutumba were randomly assigned to one of two MNP delivery platform:

Community-based or Facility-based



MNP Research Timeline 2016-2017

Distribution
(February)

Qualitative
(May)

Endline Quantitative /
Qualitative (Nov-Dec)

Mobilization
and
Orientation

MNP Distribution and Data Collection

Routine data collection
(stock levels, VHT/HW reporting, spot checks)

Costing data collection



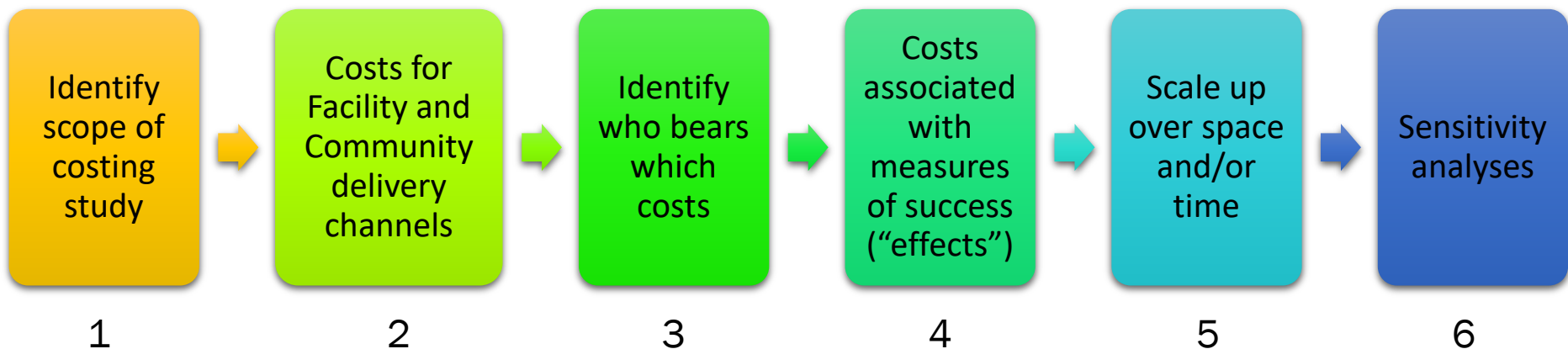
Costing



What Can We Learn from a Costing Study?

- Often, we do not know the true cost of health and nutrition interventions.
- This makes it difficult for policy-makers to weigh trade-offs and ensure the efficient allocation of resources.

For our MNP costing study...



Elements of Costing Analysis

Initial Investments

Costs

- Capital investments
- Monthly overhead
- MNP procurement

Start-Up & Ongoing Activities

Costs

- Logistics
- Social behavior change communications
 - Capacity building
 - Monitoring and evaluation

Opportunity Costs

Attending Activities

Costs

- Cost of time away from normal duties (paid employees and volunteers)
- Time spent attending activities (trainings and meetings)

Last Mile

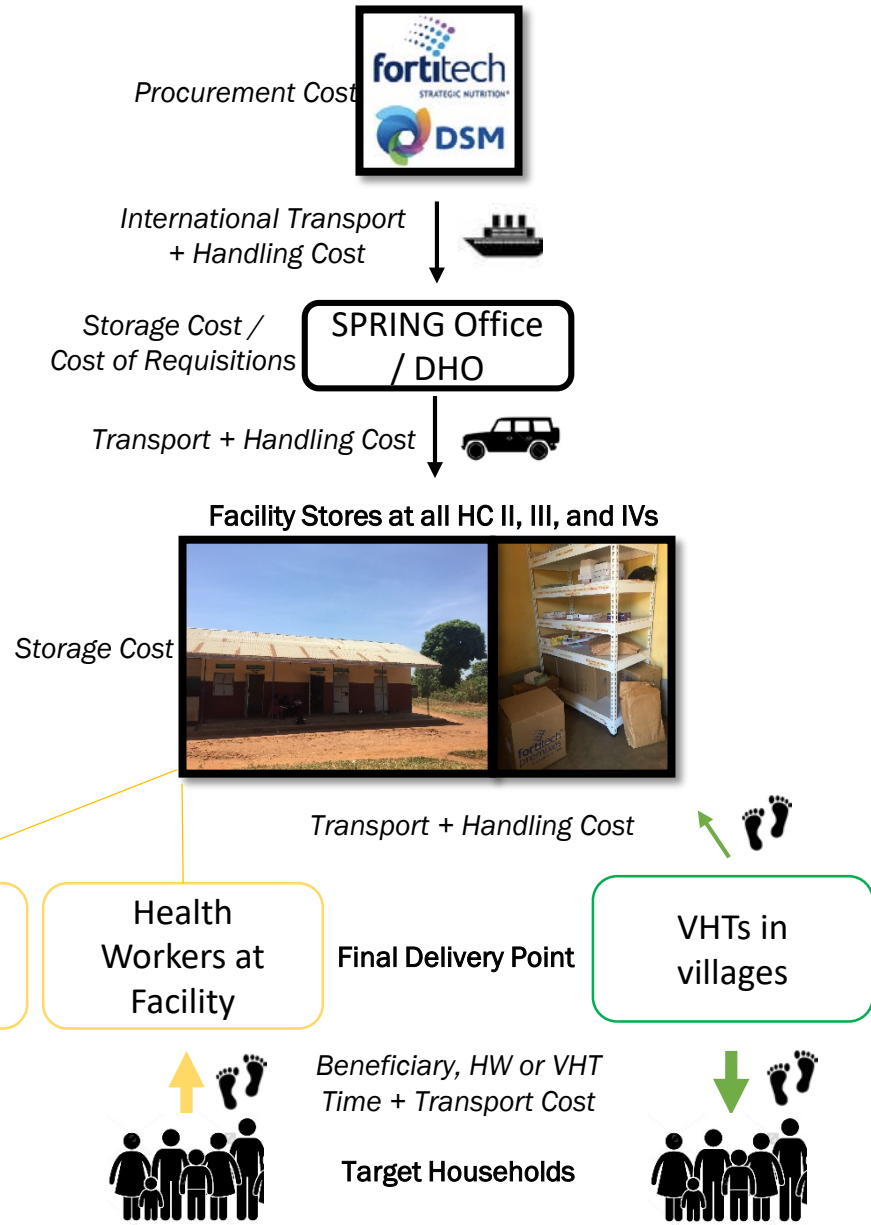
Costs

- Time spent distributing VMP
 - Transportation costs



MNP Supply Chain

MNP Pilot Supply Chain



“Last Mile” - Last steps in the supply chain to deliver MNP to beneficiaries



Opportunity Cost of People's Time

Opportunity cost of time = hours worked × estimated hourly wage



↓
Time allocation
Interviews with
HWs and VHTs
involved in MNP
distribution

↓
Salaries or
Prevailing market wage

Total Cost = Budgetary costs + opportunity cost

*Total cost reflects the
full cost burden to society,
and who bears what proportion of each
cost.*



Results: Total Cost

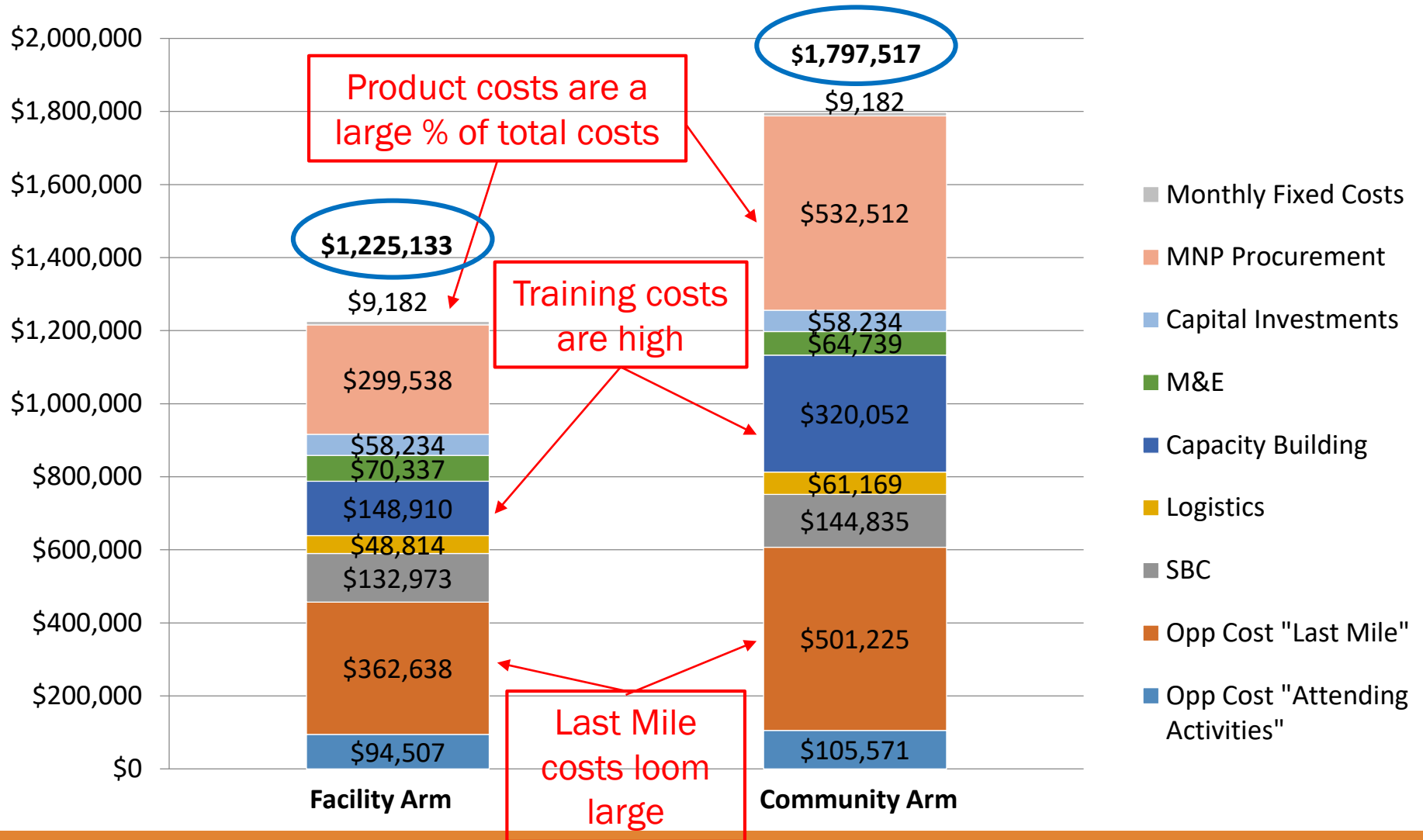


Using Pilot Study Cost Data to Construct Programmatic Scenarios

- Pilot Study Cost Scenario
 - Duration – 9 months
 - Targeted children split between two study arms
 - Arm-specific training and other start-up costs
 - Whole-study start-up costs, e.g., SBC costs
- Needed to ‘Translate’ Pilot Study Costs into Programmatic Contexts
 - Multi-year intervention programs – 3-years
 - District-wide focus
 - Smooth some start-up and training costs over 3 years
 - Different ways of managing programs



Comparing Delivery Platforms: Scaled-up to the Entire District for Three Years



Scale-Up Scenarios: Alternative Program Management Options

(over 3 years for a whole district similar to Namutumba)

1. Implementing partner scale-up
2. Implementing partner scale-up *with paid VHTs*
3. Ministry of Health takeover
4. Ministry of Health takeover *with paid VHTs*
5. Implementing partner *integrated scale-up*

“Integration” is combining some program elements with existing Infant and Young Child Feeding efforts (trainings, travel, etc.)



Scale-Up Total Cost Comparisons

Total Cost of Alternative Scenarios: 3 years, Namtumba-wide

	Facility Arm	Community Arm
	Total Cost	Total Cost
Implementing Partner Scale-Up	\$1,225,133	\$1,797,517
Implementing Partner Scale-Up with Paid VHTs		
Ministry of Health Takeover		
Ministry of Health Takeover with Paid VHTs		
Implementing Partner Integrated Scale Up		

Savings are possible, but program effectiveness and sustainability must be considered



Summary of Costing Data

- Community arm scenarios are more expensive than facility arm, primarily due to additional VHT costs
- MNP product cost and Last Mile opportunity costs were the largest portion of total costs (approx. 25% each), followed by capacity building
- Personnel costs are very large, primarily because of training and product delivery
- Integration can help reduce costs – up to a point
 - Integration resulted in a 32% reduction in the MNP budget
- Though a month's supply of MNP for one child is inexpensive, total MNP program costs are high because of the large number of children served and the personnel required to provide that service



Cost-effectiveness



Defining Measures of Program Success (Effects)

Packets distributed: inventory flows of packets (2-month supply) distributed in each delivery platform

Currently consume: MNP consumed ≥ 1 time in the last 7 days

Adhere to protocol: one sachet of MNP consumed at least 3 times in past 7 days, with food



Cost-effectiveness of Implementing Partner Scale-Up

Facility
Distribution

$$\begin{array}{r} \$1,225,133 \quad \div \quad 87,538 \quad = \quad \$14.00 \text{ / packet} \\ \text{(2-month supply)} \end{array}$$

\$0.47 per sachet

Total Program
Cost
Comparison

MNP packets distributed

Cost-
Effectiveness
Comparison

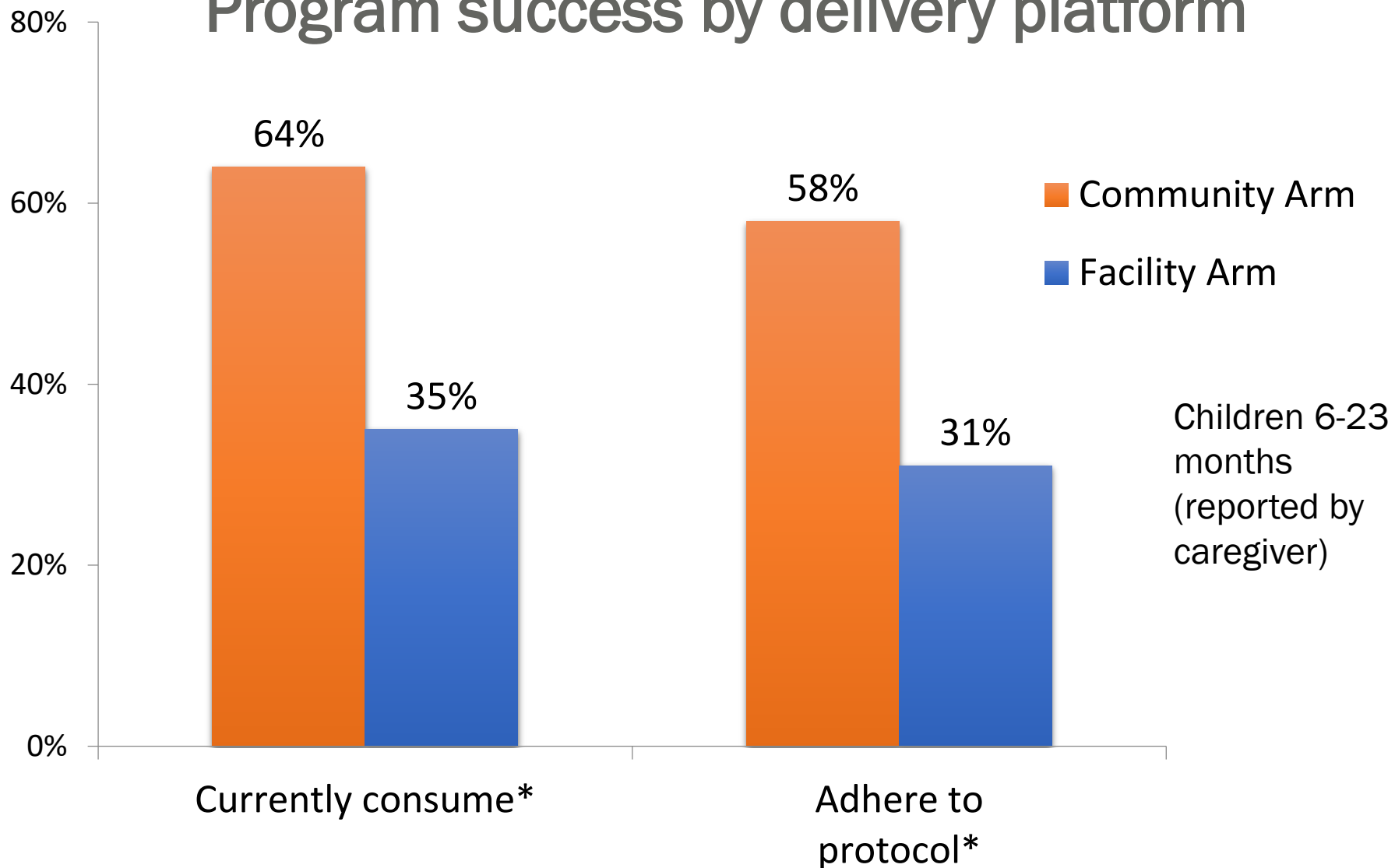
$$\begin{array}{r} \$1,797,517 \quad \div \quad 277,396 \quad = \quad \$6.48 \text{ / packet} \\ \text{(2-month supply)} \end{array}$$

\$0.22 per sachet

Community (VHT)
Distribution



Program success by delivery platform



*Difference between arms is statistically significant

n=543 community arm
n=521 facility arm



Cost-Effectiveness Changes with Measures of Effect

Cost-Effectiveness Comparison of Three-Year Scale-Up Scenarios MNP Distribution in Namutumba, Uganda

Scale Up Scenario	Cost/Packet Distributed (2-mo supply)		Cost/Child Reached (taken MNP in past week)		Cost/Child Adhered to Protocol	
	Community Arm	Facility Arm	Community Arm	Facility Arm	Community Arm	Facility Arm
Implementing Partner (IP)	\$6.48	\$14.00				
IP w/ paid VHTs						
MOH Takeover						
MOH Takeover w/ paid VHTs						
IP Integrated						

Key Messages:

- 1) Community arm is more cost-effective than Facility arm, for all indicators of success;
- 2) Both platforms are expensive in terms of adherence to protocol

Summary of Cost-effectiveness Results

- Facility arm total costs were lower than community arm costs, regardless of how distribution was managed or by whom
- Community arm was much more effective and hence more cost-effective than facility arm
- Both delivery platforms fell short of expectations regarding consumption of MNP and especially adherence to protocol
 - Therefore, the cost per case of anemia averted may be high



SPRING Cost-effectiveness Research Can Address

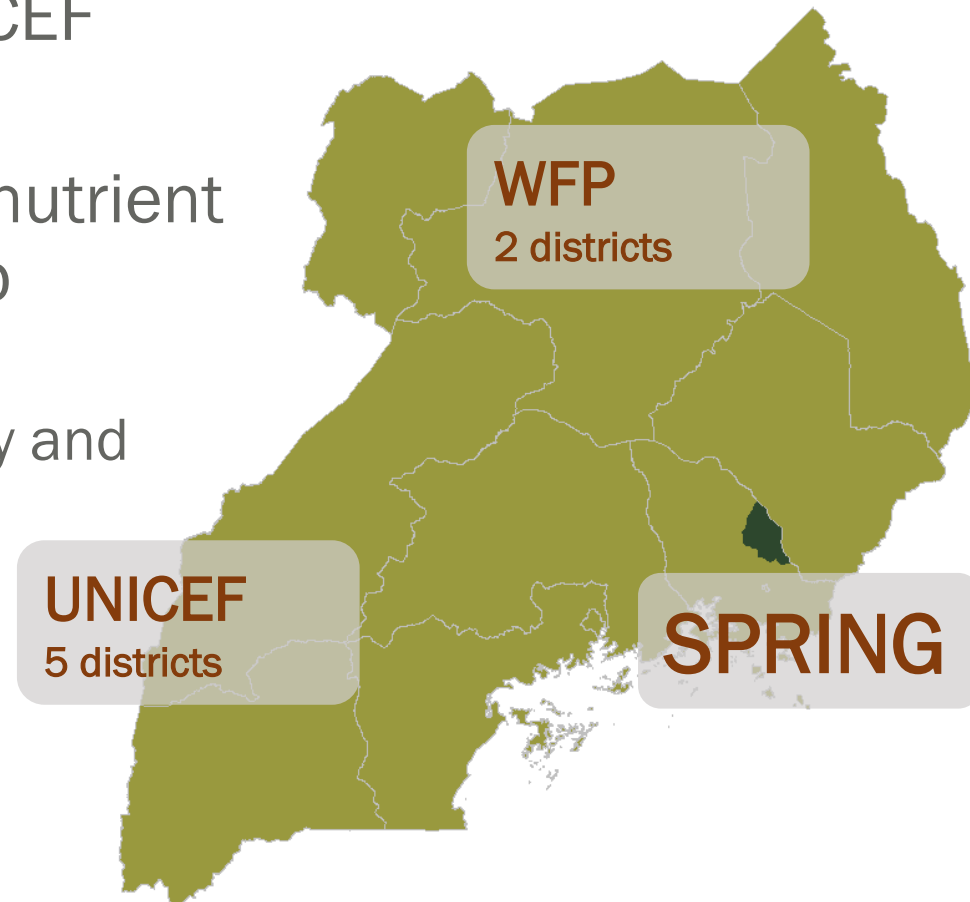
- Choice of distribution method
 - Consider cost-effectiveness
- Assessment of who bears which program costs
 - Budgetary costs are much larger than opportunity costs
 - Opportunity costs may be more important in influencing productivity and sustainability
- Preparation for scaling up MNP distribution
 - Which group can/should manage MNP distribution?
 - Can/should VHTs be paid?
 - If so, how much and by whom?

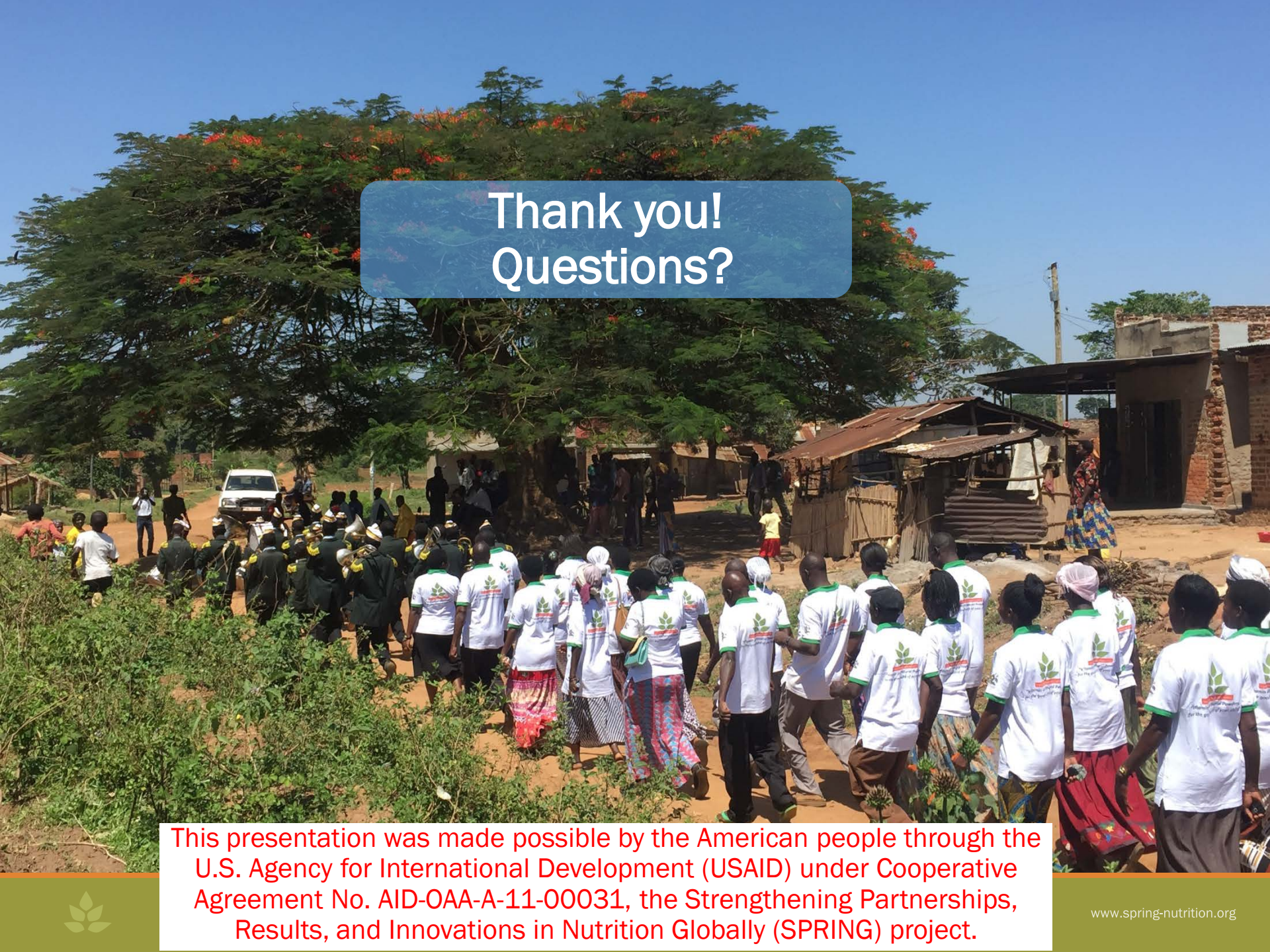


Study implications and next steps

for MNP in Uganda

- Results of WFP and UNICEF programs coming in.
- Ministry of Health Micronutrient Technical Working Group reviewing results.
 - Informing MoH budgetary and programmatic decisions





Thank you!
Questions?

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