



# **Strengthening the Economic Evaluation of Complex Multisectoral Actions for Health and Nutrition**

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Yale School of Public Health**

# Today's seminar in three parts



**Section 1:** Understand the types of economic evaluations for measuring costs and benefits for multisectoral and nutrition sensitive programs.

**Section 2:** What makes evaluating complex multisectoral strategies challenging?

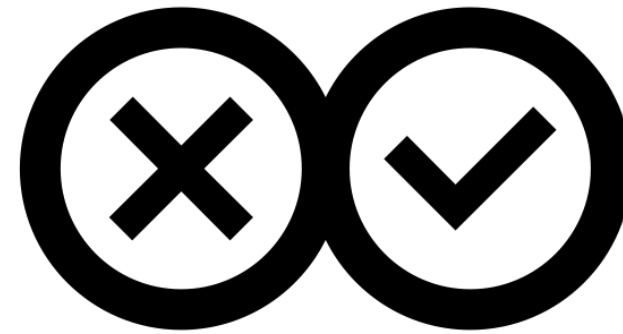
**Section 3:** Overview of a standardized approach for economic evaluations of complex multisectoral nutrition programs. (SEEMS-Nutrition)

Discussion and Q & A

- Feel free to ask questions in the chat box too!

# QUIZ QUESTION # 1

**Economic evaluations include a range of** comparative methods to help evaluate choices or trade-offs between costs and benefits.

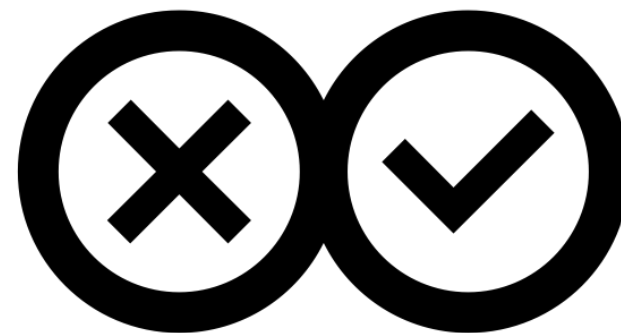


- ☐ **FALSE**
- ☐ **TRUE (Raise Hand)**

## QUIZ QUESTION # 2

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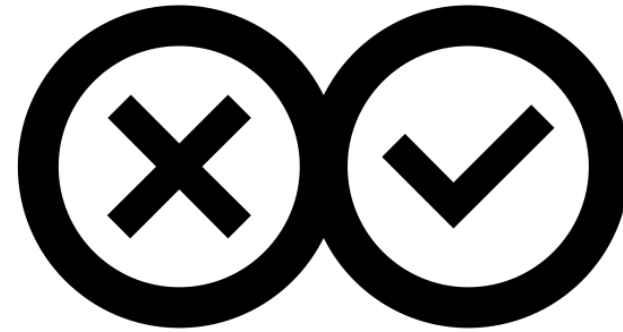
The total economic costs of an intervention includes the opportunity cost of all resources used, whether or not they were paid for.



- ☐ **FALSE**
- ☐ **TRUE (Raise Hand)**

## QUIZ QUESTION # 3

It is easy to value the multiple benefits from improved agriculture, food security, health, nutrition and gender empowerment resulting from effective multisectoral nutrition strategies.



- ☐ **FALSE**
- ☐ **TRUE (Raise Hand)**



Section 1

# PRIMER ON ECONOMIC EVALUATION





# When spending is guided by evidence, millions of lives can be saved

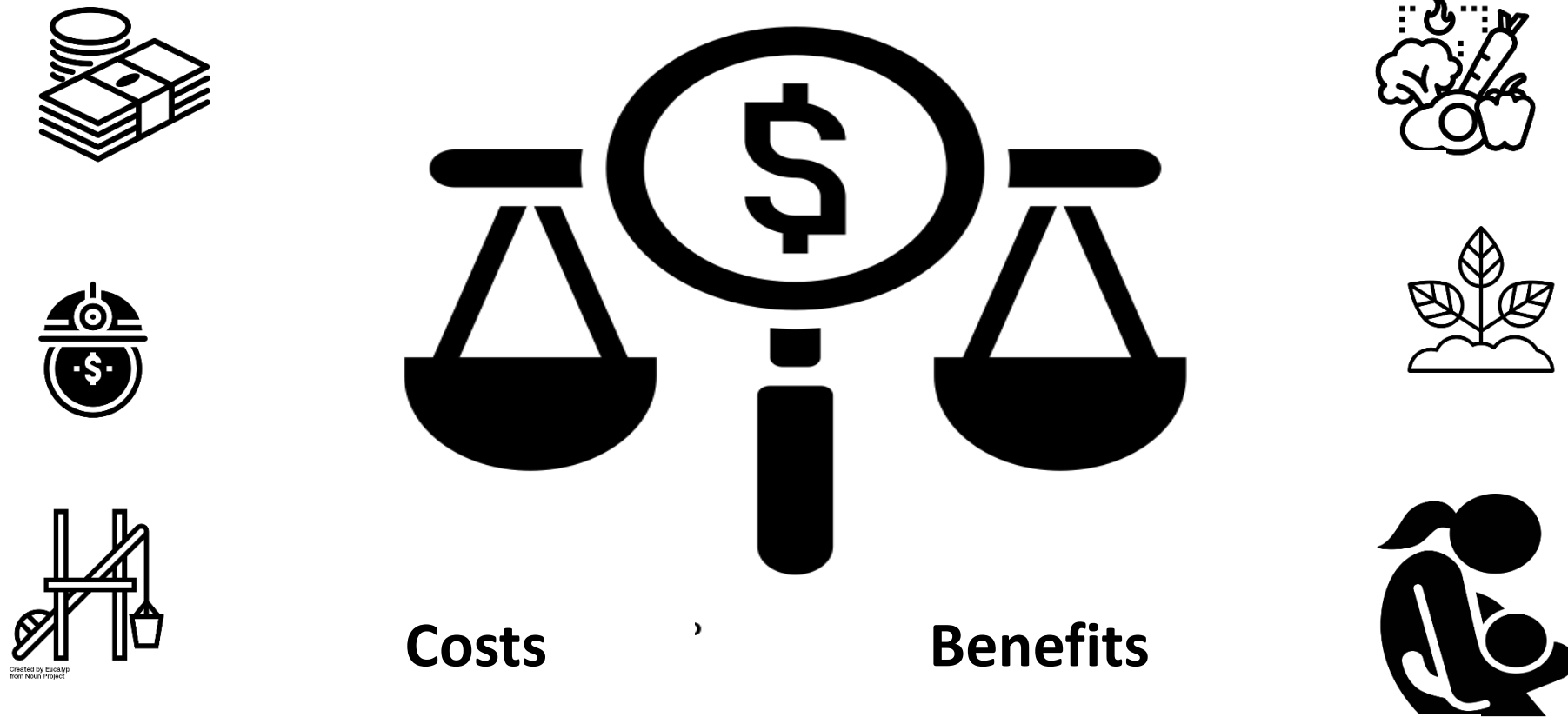
**Priority setting for new interventions or introducing new technologies**

**Resource requirements and advocacy**

**Financial planning and budgeting**

**Improving technical efficiency**

# What is economic evaluation?



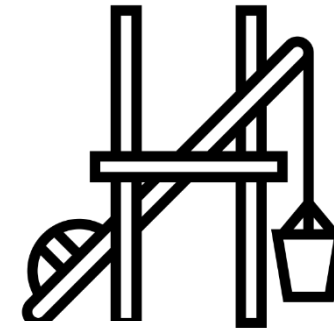
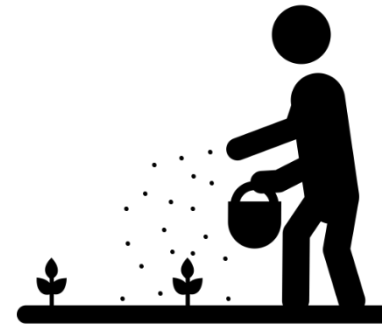


# Types of economic evaluations

Method of Analysis	Cost	Effect
Cost-efficiency Analysis	\$	Output achieved by an intervention
Cost-Effectiveness Analysis	\$	Single “natural” unit outcome measure
Cost-Utility Analysis	\$	Multiple outcomes—using a health index (DALY, QALY)
Cost-Benefit Analysis	\$	\$

# Characteristics of all economic evaluations – Valuing resource use

- **Inputs** come from these resources:
  - Capital
  - Labor
  - Supplies and other inputs
- Once you value these inputs or resources in monetary terms --- you get COSTS!



# Costs will represent the value of all resources used to reach program goals



- *Estimate both economic and financial costs*
- *Economic costs* include inputs that are not paid for in the current project budget:
  - Donated goods, volunteer labor, discounted goods, or services
  - Use for Economic Evaluations, such as CEA or CUA
- *Financial costs* represent actual expenditure on goods and services purchased:
  - Use for financial analysis (affordability, budget allocation)

# Think about it!

- Think of a donated good in a health or nutrition intervention.
- List your response in the chat box!



# Think about it!

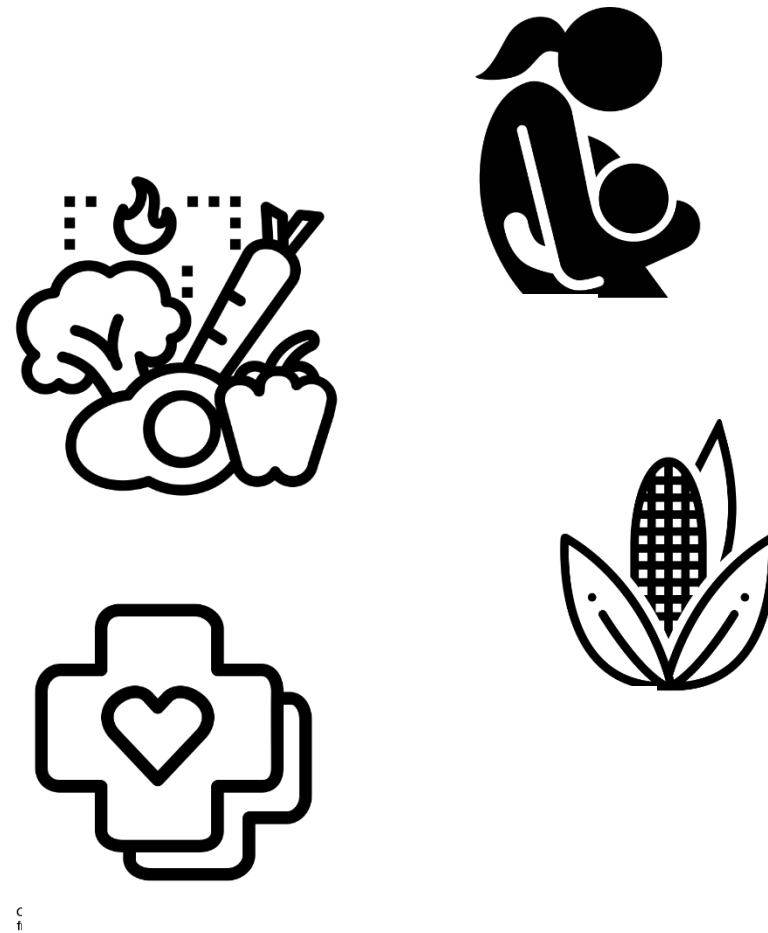
- Think of one or more examples of typical financial expenditures in a multisectoral health or nutrition project
- List your response in the chat box!



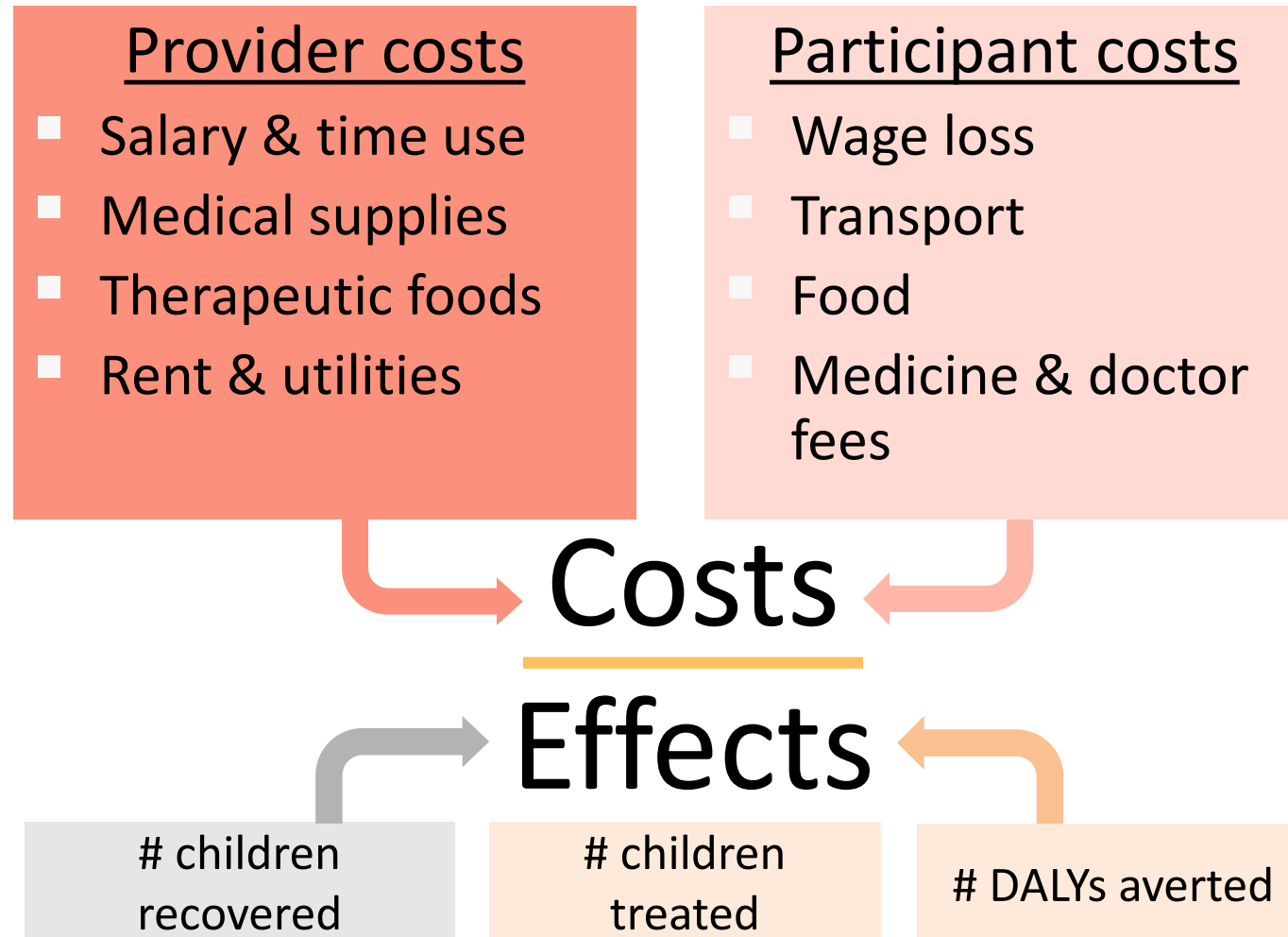


# Characteristics of economic evaluations – Measures of effectiveness

- Changes in agriculture **outputs**, diets, nutritional status or health **outcomes** as a result of a program or intervention.



# Example of what is included in cost effectiveness analysis



Source, Puett et al 2013)

# Reporting results

## **Cost efficiency**

- Cost per output achieved
- i.e. This intervention cost \$55 per household reached.

## **Cost-effectiveness analysis**

- Cost per outcome
- i.e. This intervention cost \$200 per child recovered from acute malnutrition

## **Cost benefit analysis**

- i.e. This intervention has a cost benefit ratio of 4:1 and a net present value that is  $> 0$

# How do policy makers use Economic Evaluations?

The **effectiveness target** is clear.

- Minimize the expenditure needed to achieve the target.

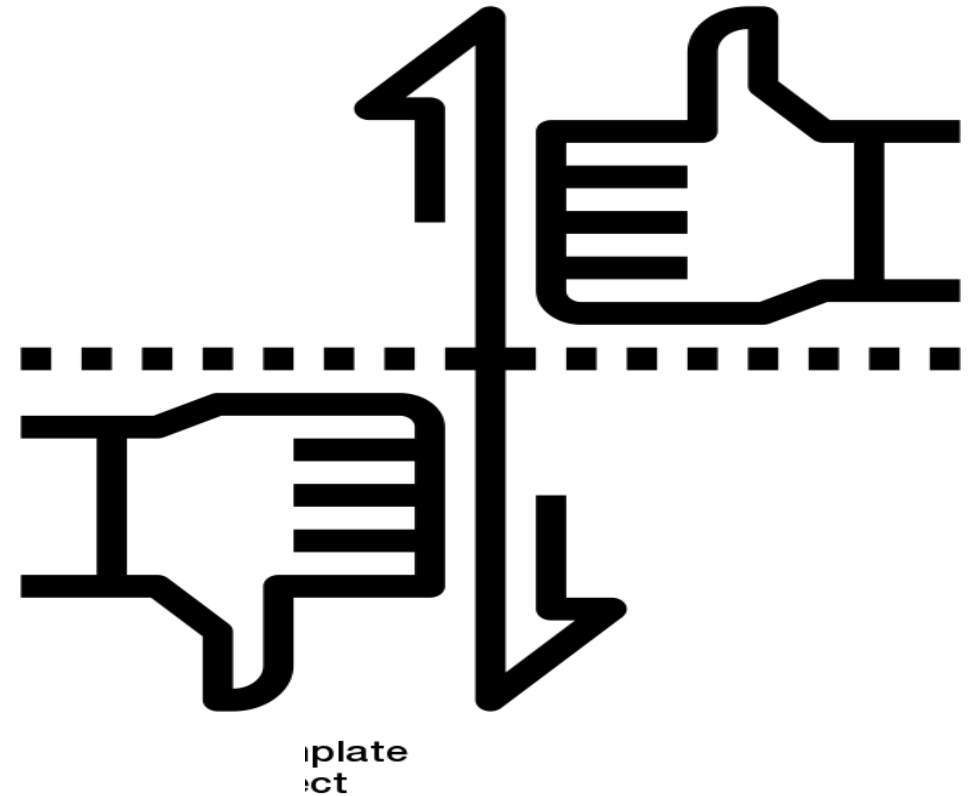


The **budget constraint** is clear.

Maximize health and economic benefits within the given budget.

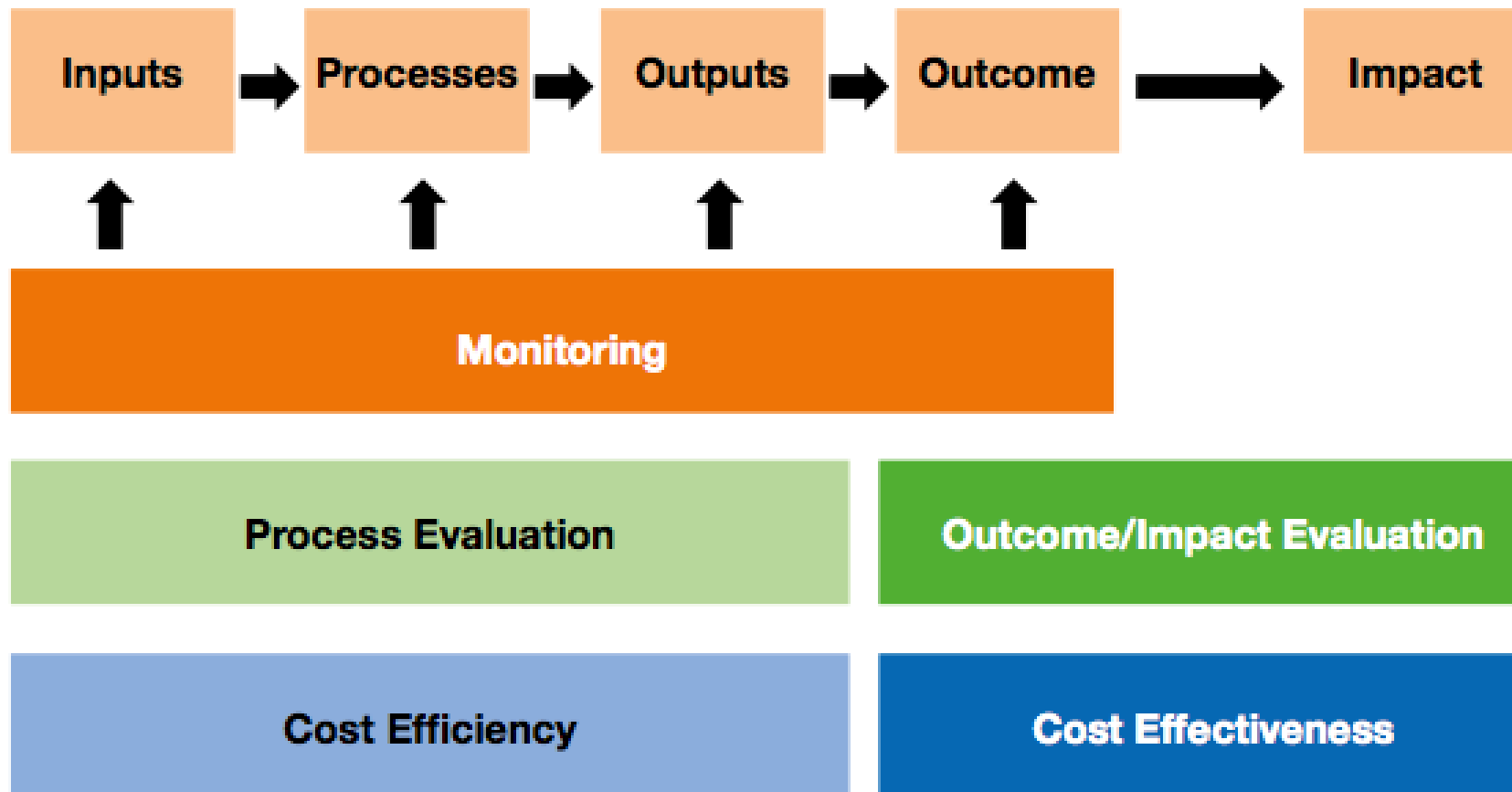
# What is an acceptable threshold for cost-effectiveness?

- Most common threshold in LMICs is based on a country's GDP per capita.\*
- **Very cost effective**
  - 1 x the annual GDP per capita.
- **Cost effective**
  - 3 \* the annual GDP per capita.





# When to conduct an economic evaluation?





## **Four broad steps in cost-effectiveness analysis**

1. Defining the decision problem (also known as ‘framing the evaluation’).
2. Identifying, quantifying and valuing the resources needed (i.e. costs)
3. Identifying, quantifying and valuing the health and economic consequences
4. Presenting and interpreting the evidence for decision-making.

# Reference cases



- [iDSi Reference case on economic evaluation](#) Wilkinson, T., Sculpher, M.J., Claxton, K., Revill, P., Briggs, A., Cairns, J.A., Teerawattananon, Y., Asfaw, E., Lopert, R., Culyer, A.J. and Walker, D.G., 2016. The international decision support initiative reference case for economic evaluation: an aid to thought. *Value in Health*, 19(8), pp.921-928 [GHCC Reference case on global health costing](#) Vassall, A., Sweeney, S., Kahn, J., Gomez, G., Bollinger, L. and Marseille, E., 2017. Reference Case for Estimating the Costs of Global Health Services and Interventions. Seattle, WA: Global Health Cost Consortium. [Harvard School of Public Health BCA guidelines](#) Robinson, L.A., Hammitt, J.K., Jamison, D.T. and Walker, D.G., 2019. Conducting Benefit-Cost Analysis in Low-and Middle-Income Countries: Introduction to the Special Issue. *Journal of Benefit-Cost Analysis*, 10(S1), pp.1-14.

# Resources for learning more

## Guidance for public health, nutrition and early childhood development

- Moreland, S. F Shaylen and L Morris. (2019) [A Guide to the Fundamentals of Economic Evaluation in Public Health. USAID, Measure Evaluation.](#)
- Puett, C. (2013) *Cost-Effectiveness Guidelines: An Introduction and Overview of Key Concepts for Cost-effectiveness Analysis within ACF*. Paris: France: Action Contre le Faim.
- Gustafsson-Wright, E. I Boggild-Jones, S. Gardiner. (2017). *The Standardized Early Childhood Development Costing Tool (SECT)*. Washington DC: The Brookings Institute.

## Additional reading on thresholds for decision making

- Remme, Michelle, Melisa Martinez-Alvarez, and Anna Vassall. "Cost-effectiveness thresholds in global health: taking a multisectoral perspective." *Value in health* 20.4 (2017): 699-704.
- Marseille, Elliot, et al. "Thresholds for the cost–effectiveness of interventions: alternative approaches." *Bulletin of the World Health Organization* 93 (2014): 118-124.

## SECTION 2:

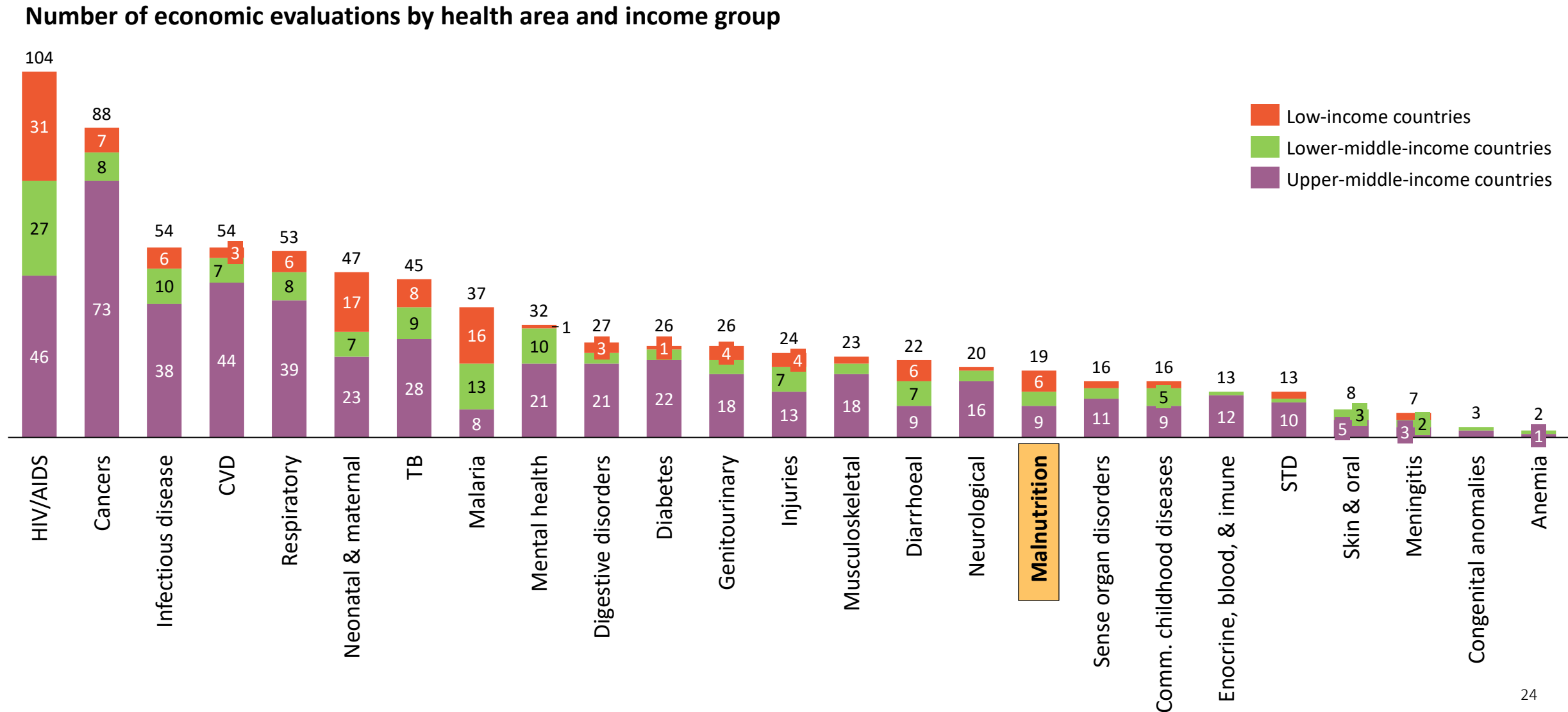
# What makes multisectoral programs to improve health and nutrition so challenging?

### Overview

- What do we know already about economic evaluation of interventions to improve nutrition?
- What are the challenges?
- Results from a recent review of how economic evaluations of multisector approaches measure benefits
- Gaps in research



# Economic evaluation is used to support decision-making in health, with some health areas more advanced than others



# Examples where economic evaluation evidence has been used to strengthen decision-making and priority setting

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- **Health technology assessment and innovations**

- Eg, in the introduction of new vaccines or investment in underutilized vaccines that are cost-effective (HPV, HepB, etc)

- **Intervention prioritization**

- Eg, CEA is critical in identifying a package of interventions for UHC, otherwise the intervention won't be included
- Eg, in the development of ART treatment guidelines and other policies

- **New program development or scale-up**

- Eg, Benefit-cost analysis of wheat flour fortification by the Copenhagen Consensus led to the creation of Haiti's first food fortification program

- **Funding decisions**

- Eg, GAVI and Global Fund investment cases

# We reviewed the current level of economic evidence available for nutrition interventions across sectors

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Building on previous work looking at evidence of impact, we reviewed literature for economic evidence for interventions in the Compendium of Action for Nutrition:



Intervention has cost data

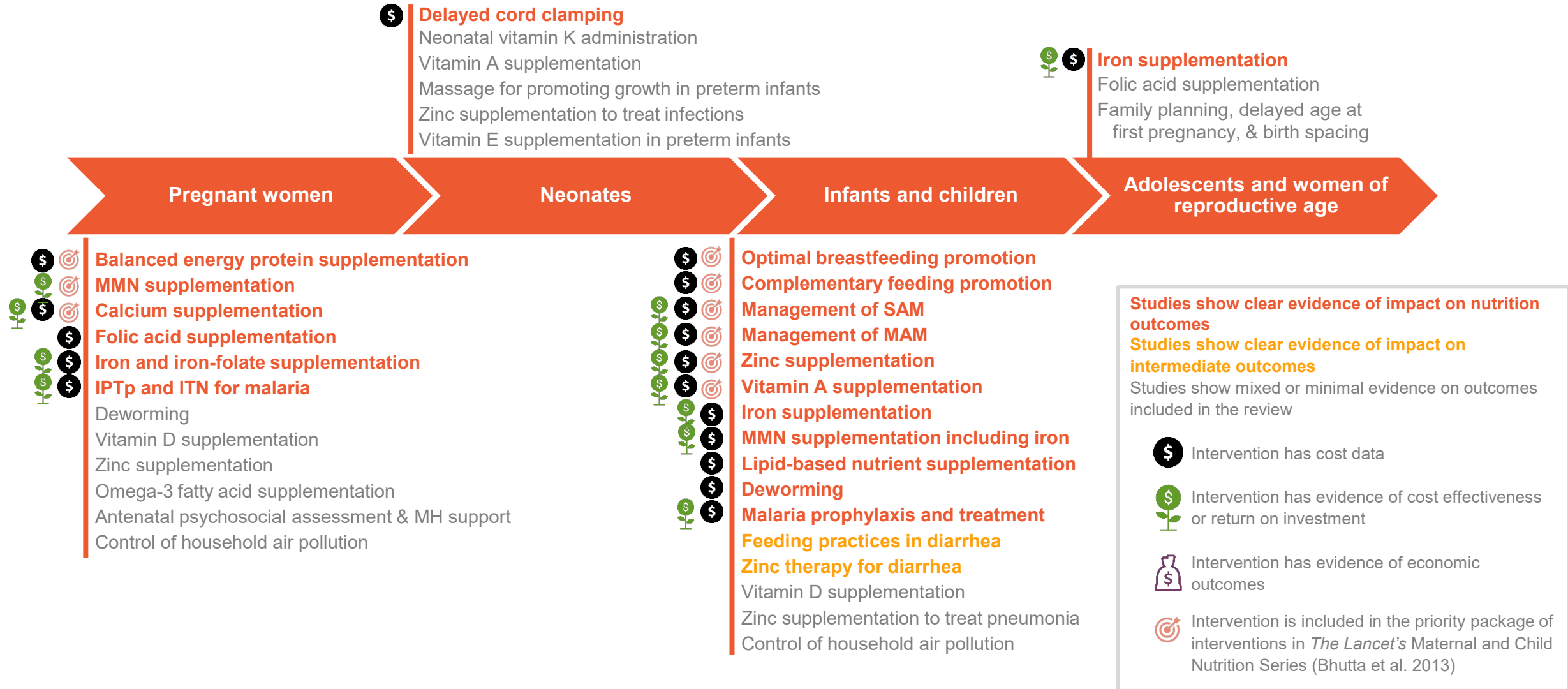


Intervention has evidence of cost effectiveness or return on investment



Intervention has evidence of economic outcomes

# Nutrition interventions in health that work across the life course

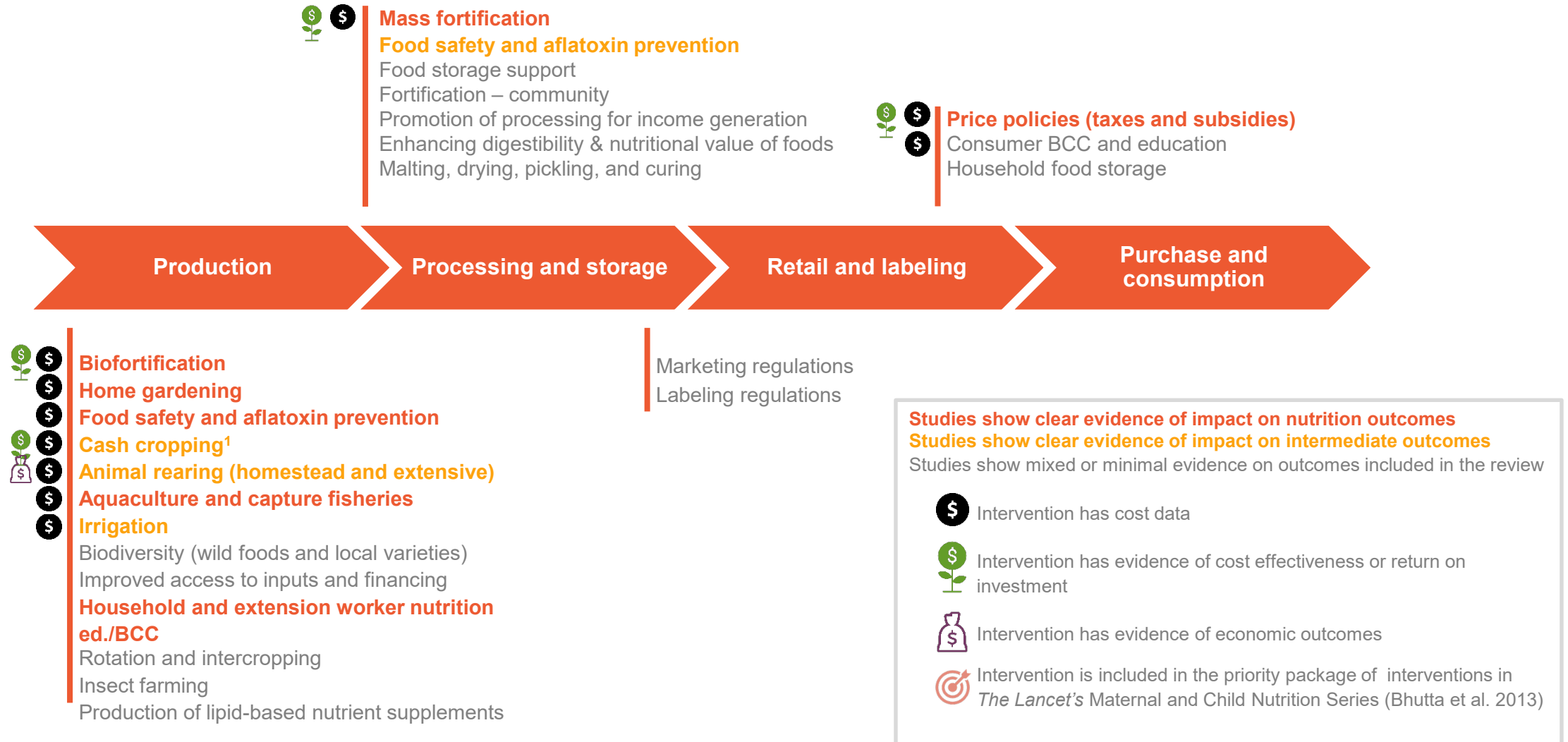


## Notes

1 Adapted from [Synthesis of Evidence of Multisectoral Approaches for Improved Nutrition](#), November 2017, Banking on Nutrition Partnership

2 Universal salt iodization, included in the agriculture section of the review, is also included in the priority package of interventions listed in Bhutta et al. 2013

# Interventions in agriculture that impact nutrition across the farm-to-fork value chain



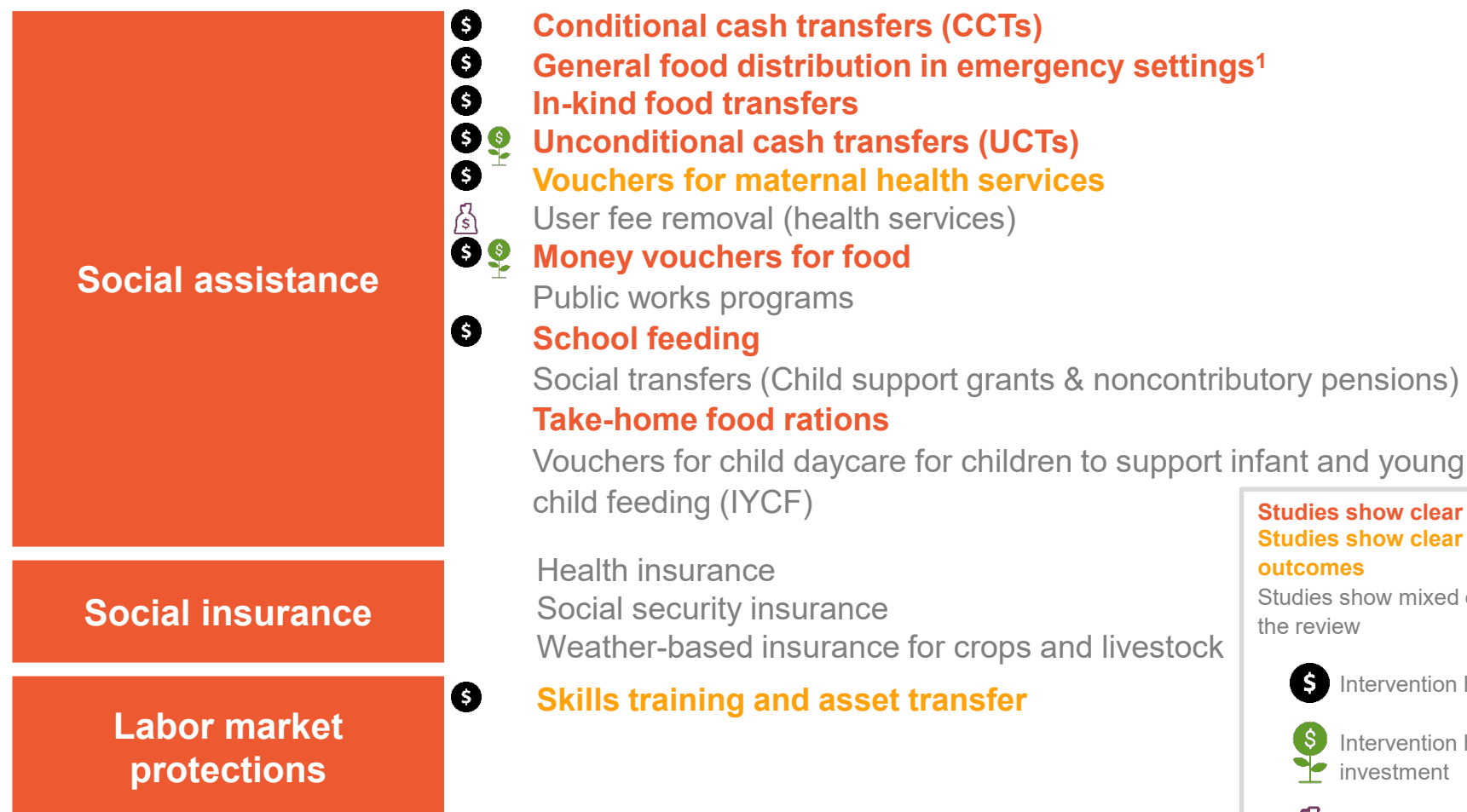
## Notes

Adapted from [Synthesis of Evidence of Multisectoral Approaches for Improved Nutrition](#), November 2017, Banking on Nutrition Partnership

<sup>1</sup> Cash cropping also has potential to do harm by decreasing diet diversity, and therefore should only be promoted in contexts in which it could support both income and consumption pathways







# Social protection interventions that impact nutrition primarily through intermediate outcomes addressing underlying causes of malnutrition



**Studies show clear evidence of impact on nutrition outcomes**  
**Studies show clear evidence of impact on intermediate outcomes**

Studies show mixed or minimal evidence on outcomes included in the review

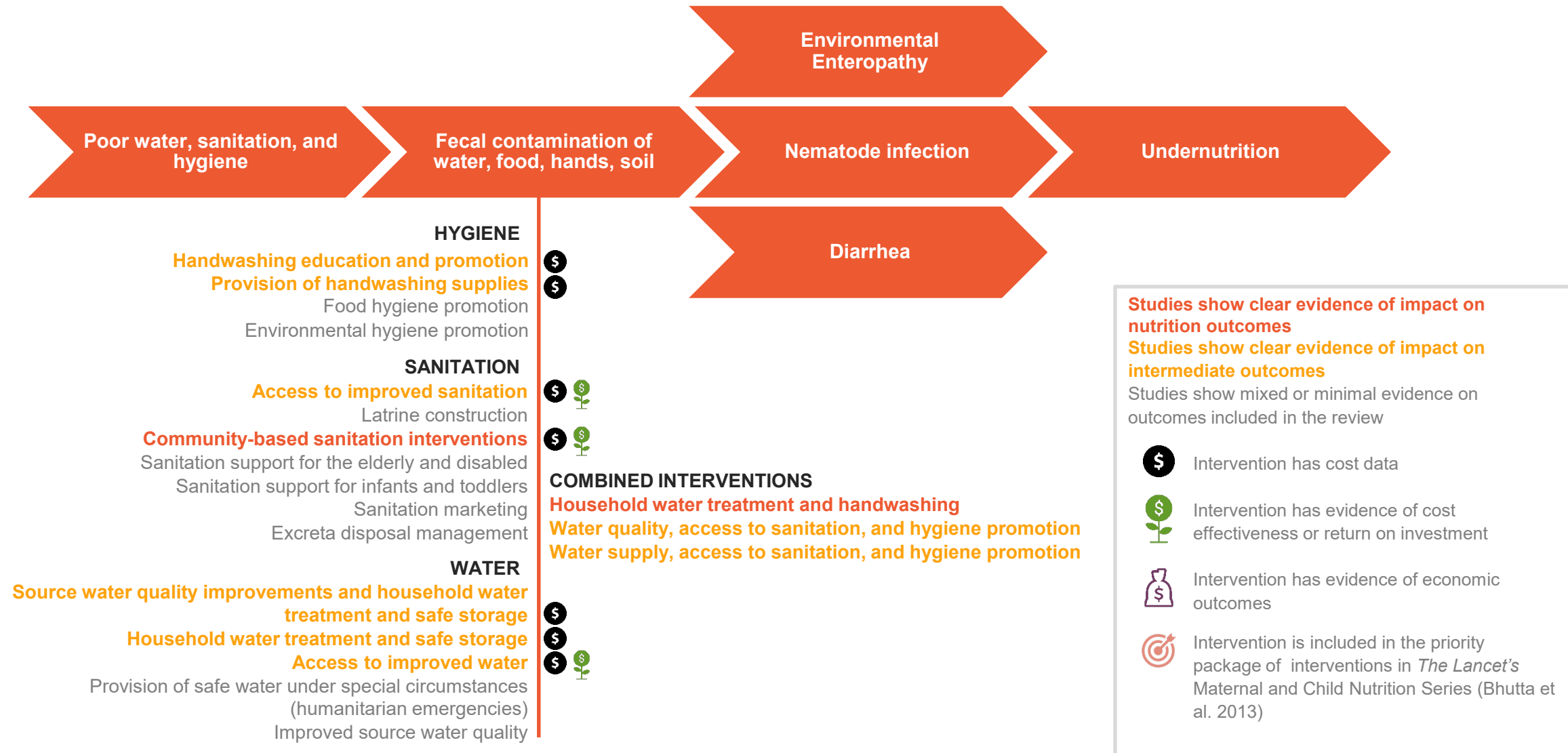
-  Intervention has cost data
-  Intervention has evidence of cost effectiveness or return on investment
-  Intervention has evidence of economic outcomes
-  Intervention is included in the priority package of interventions in *The Lancet's* Maternal and Child Nutrition Series (Bhutta et al. 2013)

## Notes

<sup>1</sup> Adapted from [Synthesis of Evidence of Multisectoral Approaches for Improved Nutrition](#), November 2017, Banking on Nutrition Partnership

<sup>2</sup> General food distribution is classified in this evidence synthesis as an emergency response intervention

# WASH interventions that have impact on intermediate outcomes on the pathway to better nutrition such as diarrhea



# Challenges of measuring costs and benefits of multisectoral approaches for nutrition

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## Methodological challenges

- Evidence is missing for new areas of research or programmatic action.
- A lot of variability in multisectoral program components.
- Long causal pathways between agriculture or WASH interventions and nutrition outcomes.
- Health, agriculture and WASH intervention measure impacts and costs differently.

# Measurement of benefits in economic evaluations of nutrition interventions in low- and middle-income countries: a systematic review

## **Selected findings**

Jolene Wun, Christopher Kemp, Chloe Puett, Devon Bushnell, Jonny Crocker, Carol Levin

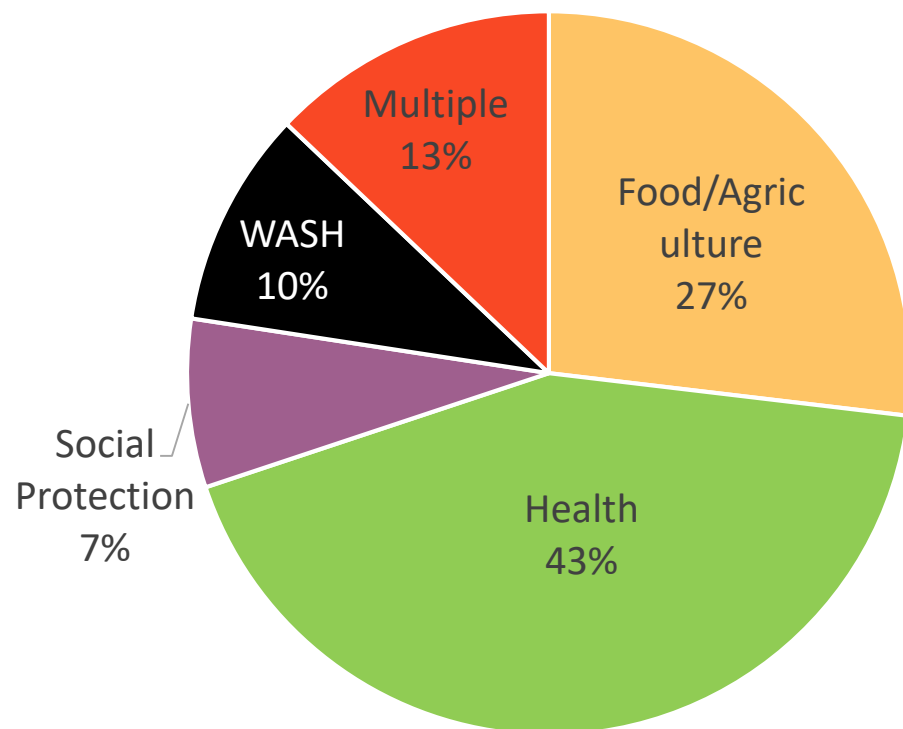
# Study overview aims

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We wanted to....

- Characterize the types of multisectoral nutrition interventions included in recent economic evaluations
- Assess the range of terminology and methodological approaches used to value the benefits of these interventions

# Studies by sector (N=93)



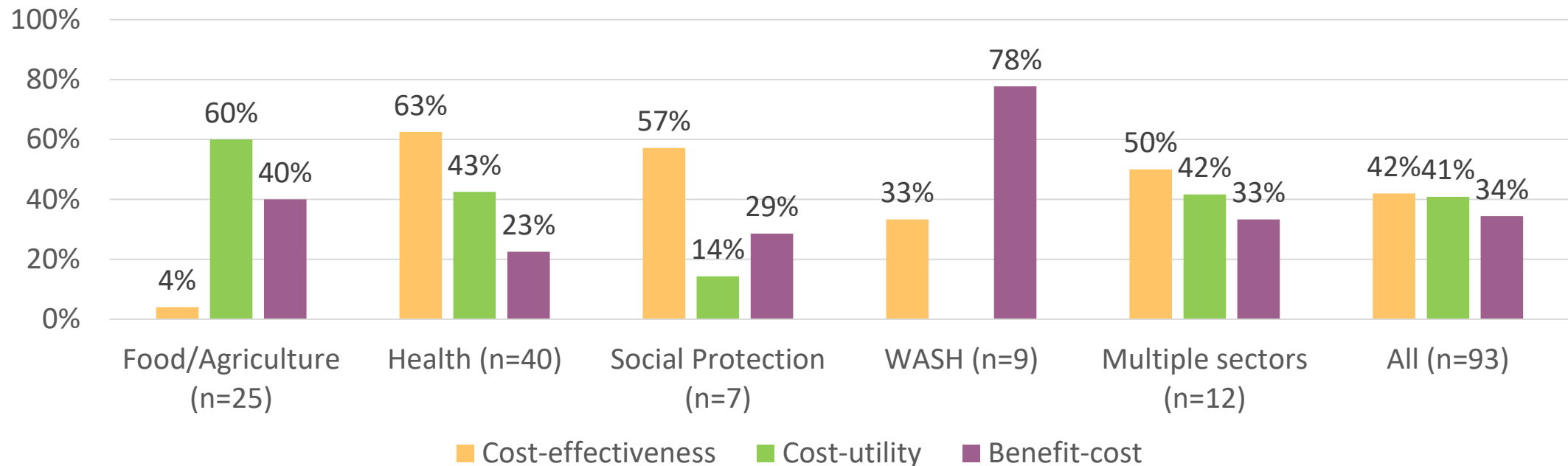
- Only 8 studies (9%) evaluated multi-sector programs
- Most frequently-studied interventions in each sector:
  - Health: management of SAM, zinc supplementation (**12 studies each**)
  - Food/ag: mass fortification (**9 studies**), biofortification (**7 studies**)
  - Social protection: food vouchers (4 studies), unconditional cash transfers (3 studies)
  - WASH: household water treatment & storage (5 studies), sanitation access (4 studies)



# The choice of economic evaluation method varied by sector

CEA most frequently used in Health and Social protection

BCA most frequently used in Agriculture and WASH studies



# Types of benefits included in CEA, CUA, and CBA ratios by sector

(N=128)

	All	Food/ Agriculture	Health	Social Protection	WASH	Multiple
<b>Total # of economic evaluation ratios</b>	<b>128</b>	<b>27</b>	<b>54</b>	<b>16</b>	<b>14</b>	<b>17</b>
Nutrition status improved	72 (56.3%)	15 (55.6%)	39 (72.2%)	5 (31.3%)	1 (7.1%)	12 (70.6%)
Other health status improved	8 (6.3%)	0 (0.0%)	5 (9.3%)	0 (0.0%)	0 (0.0%)	3 (17.6%)
Monetization of health status improvements	10 (7.8%)	3 (11.1%)	2 (3.7%)	0 (0.0%)	4 (28.6%)	1 (5.9%)
Productivity gain	15 (11.7%)	3 (11.1%)	6 (11.1%)	0 (0.0%)	4 (28.6%)	2 (11.8%)
Cognitive/education gain	3 (2.3%)	0 (0.0%)	0 (0.0%)	3 (18.8%)	0 (0.0%)	0 (0.0%)
Cost savings: health system	17 (13.3%)	0 (0.0%)	10 (18.5%)	0 (0.0%)	3 (21.4%)	4 (23.5%)
Cost savings: beneficiary	28 (21.9%)	1 (3.7%)	15 (27.8%)	0 (0.0%)	8 (57.1%)	4 (23.5%)
Dietary diversity	3 (2.3%)	1 (3.7%)	0 (0.0%)	2 (12.5%)	0 (0.0%)	0 (0.0%)
Knowledge/attitude/practice	9 (7.0%)	0 (0.0%)	3 (5.6%)	0 (0.0%)	6 (42.9%)	0 (0.0%)
Food security	6 (4.7%)	1 (3.7%)	0 (0.0%)	4 (25.0%)	0 (0.0%)	1 (5.9%)
Income	12 (9.4%)	9 (33.3%)	0 (0.0%)	2 (12.5%)	0 (0.0%)	1 (5.9%)

# Gaps in current research

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## Summary of findings from the systematic review

- Economic evaluation of more non-health sector and multipronged interventions are needed.
- Choice of the type of economic evaluation and which benefits are included are strongly related to the intervention's sector.
- Several benefits (including women's empowerment and mental/social benefits) are often omitted, regardless of sector.
- Cost savings (indirect and direct) should be included in more economic evaluations, regardless of evaluation type.

# Evidence on costs and benefits of multi-sectoral nutrition-sensitive programming is limited and this delays progress

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Multi-sectoral nutrition-sensitive actions are **critical** to achieve the WHA targets for nutrition by 2025 and the SDGs



Decision-makers rely on available evidence to inform **strategic planning, priority setting, and resource allocation** for multi-sectoral nutrition programming



**Evidence on program costs and benefits is lacking and this limits the ability of decision-makers to invest in nutrition**



Recent calls for increased integration and **standardization** of economic analysis as part of impact evaluation

*e.g., World Bank SIEF Report 2019, 3IE Evidence Week webinar 5/22*

# Strengthening Economic Evaluation for Multisectoral Strategies for Nutrition: SEEMS-Nutrition

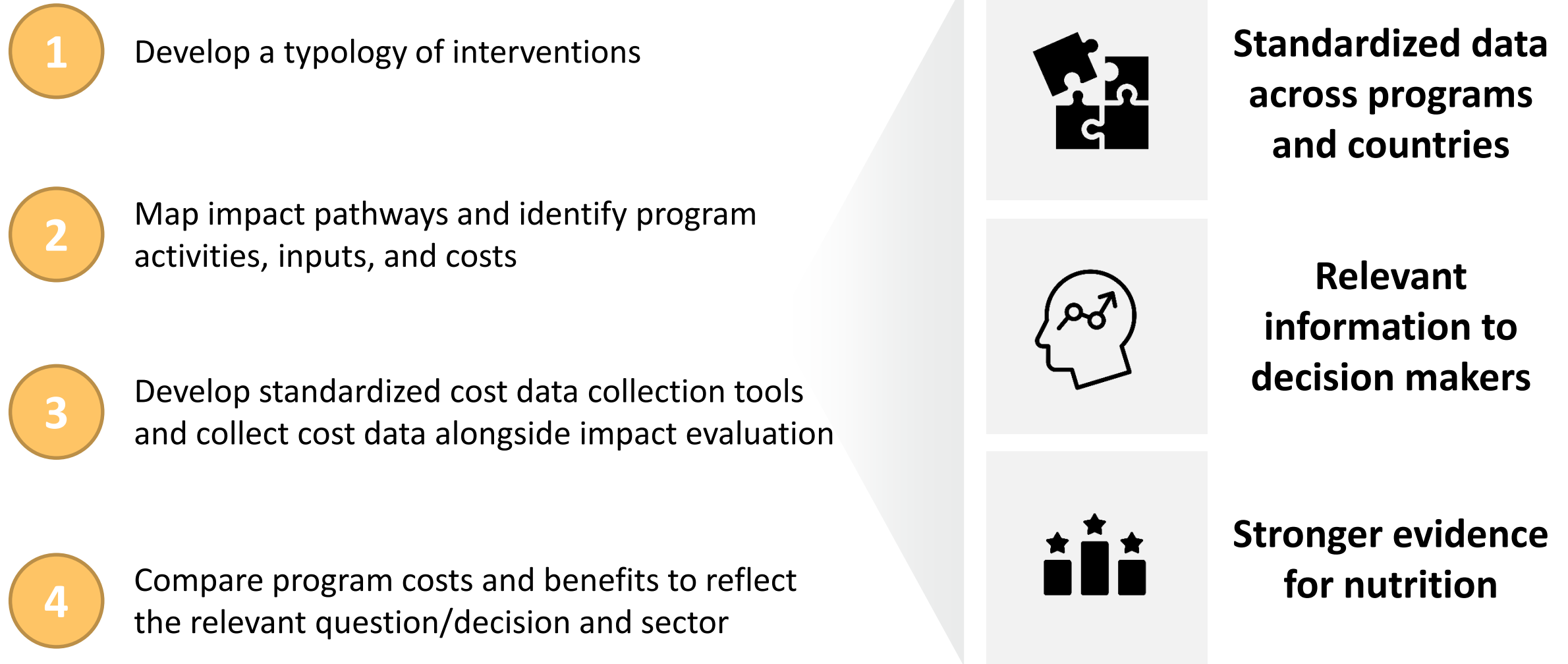
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## Overall objectives

1. Define most **appropriate, standardized** methods for measuring cost and cost effectiveness of integrated multisectoral nutrition strategies and interventions
2. Estimate the **costs** and **benefits**, as well as **cost-effectiveness**, of integrated multisectoral approaches to improve nutrition and health outcomes

# SEEMS-Nutrition is developing a common approach to guide how economic evaluations for nutrition are conducted

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ANH Academy Technical Brief

# Economic Evaluation of Multisectoral Actions for Health and Nutrition



[www.anh-academy.org](http://www.anh-academy.org)



Leverhulme Centre for  
Integrative Research  
on Agriculture & Health



Research  
Association for  
Agriculture for  
Nutrition  
and Health



Section 3:  
Overview of the  
common approach

STAGE 1

# Develop a typology based roughly on nutrition-sensitive value chain framework

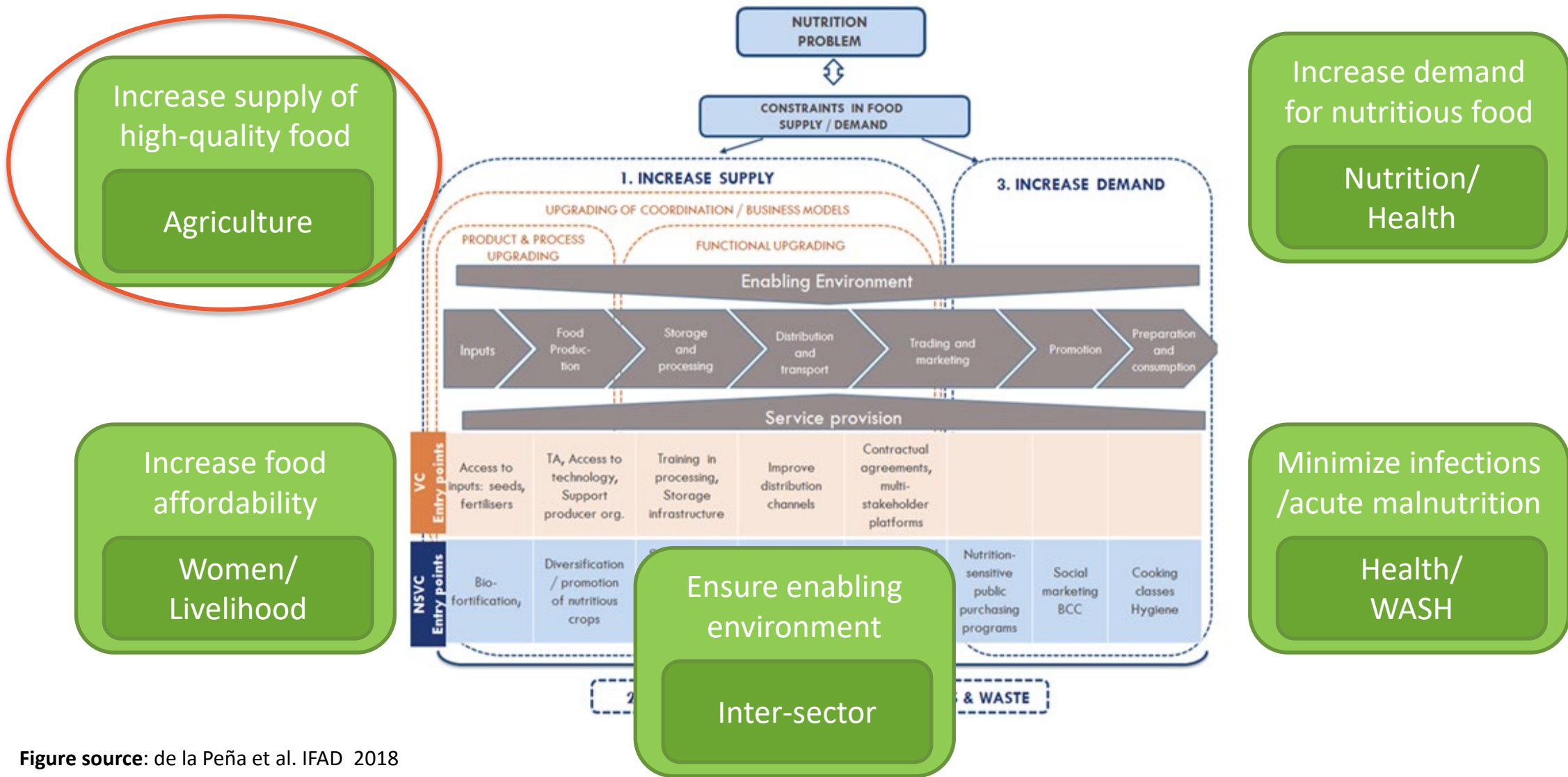
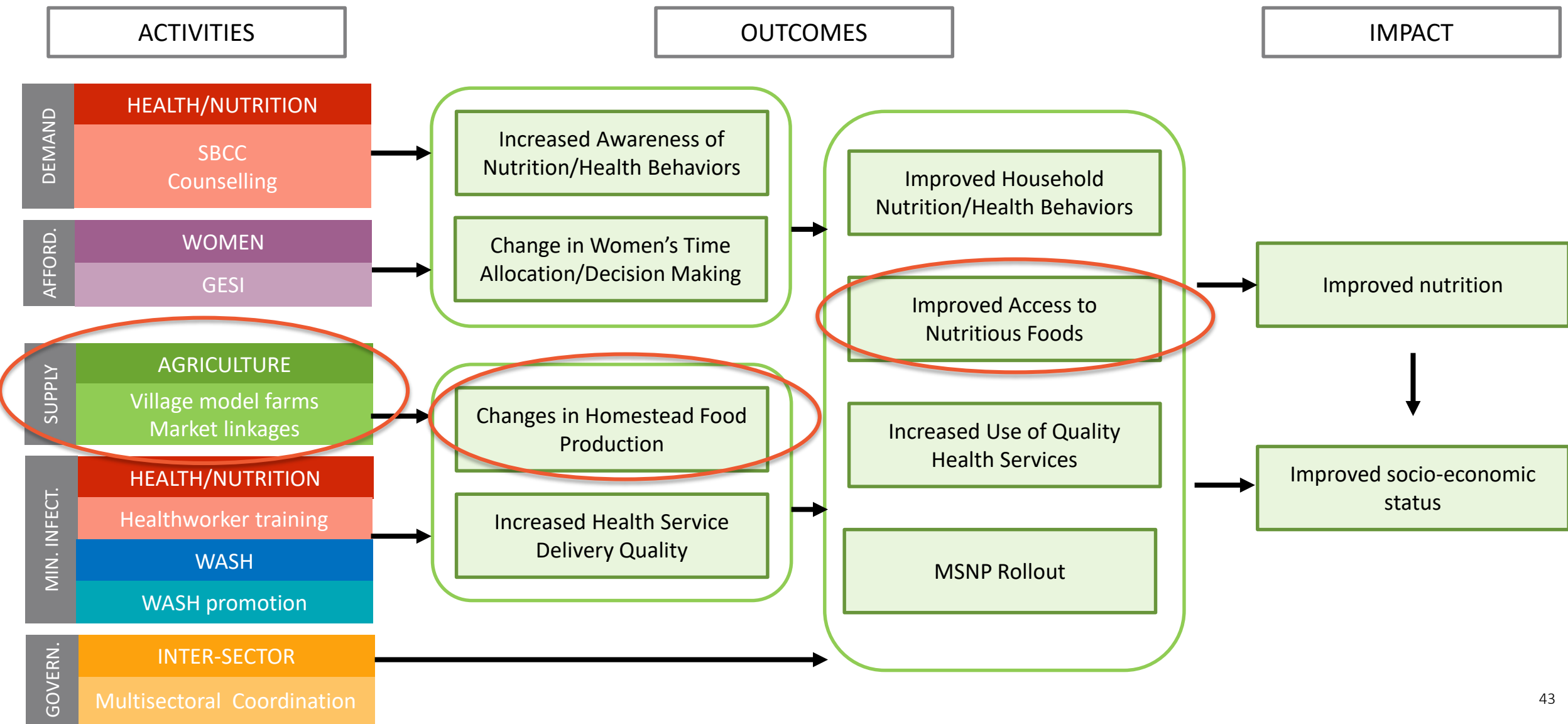


Figure source: de la Peña et al. IFAD 2018

STAGE 2

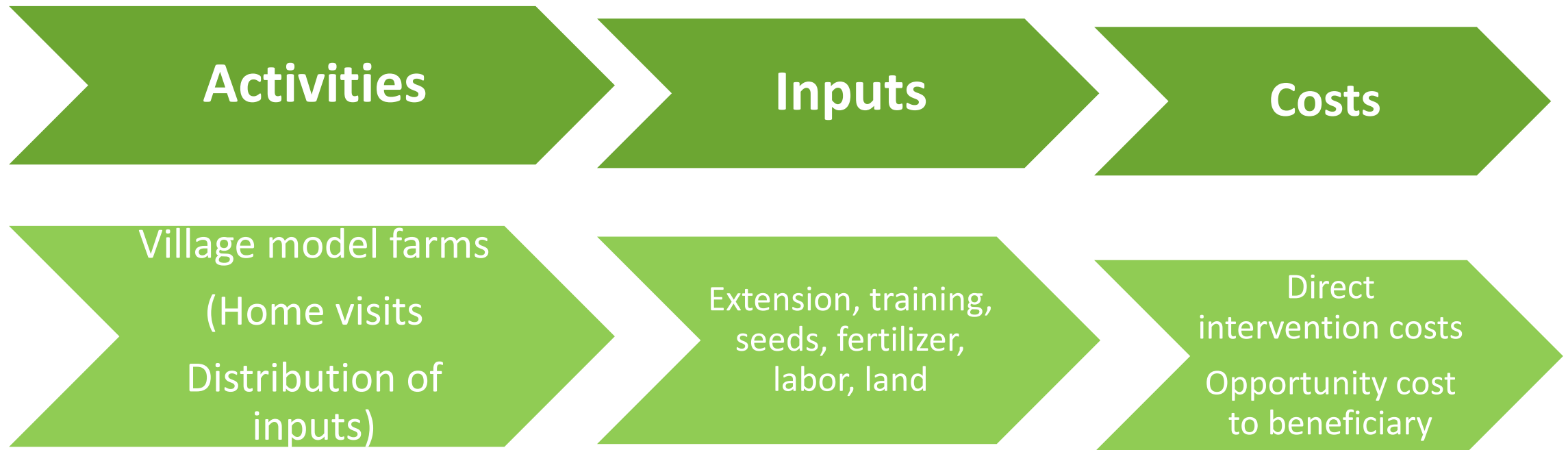
# Map activities, inputs and costs along the program impact pathway



STAGE 3

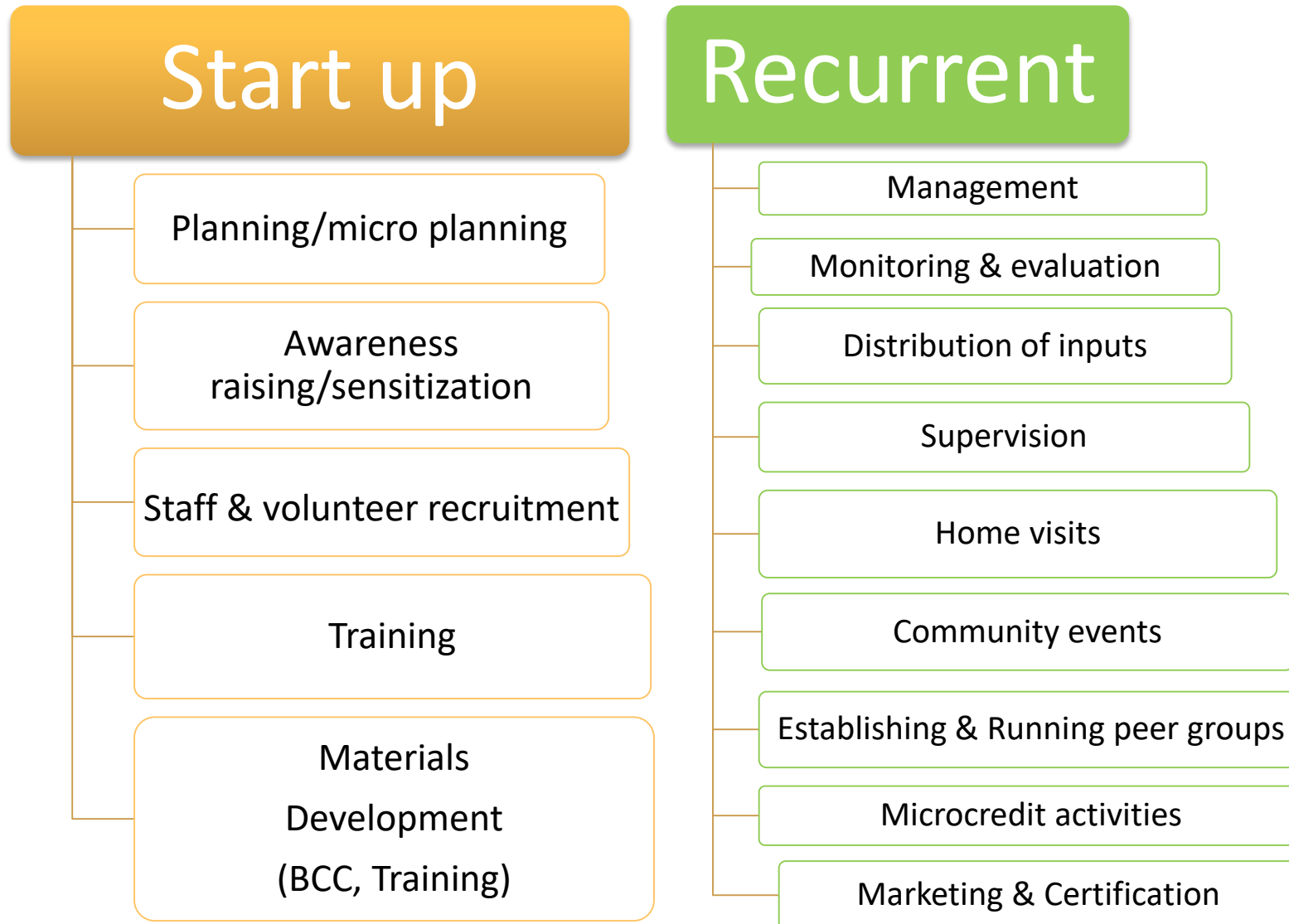
# Define activities, inputs and costs based on the program impact pathway\*

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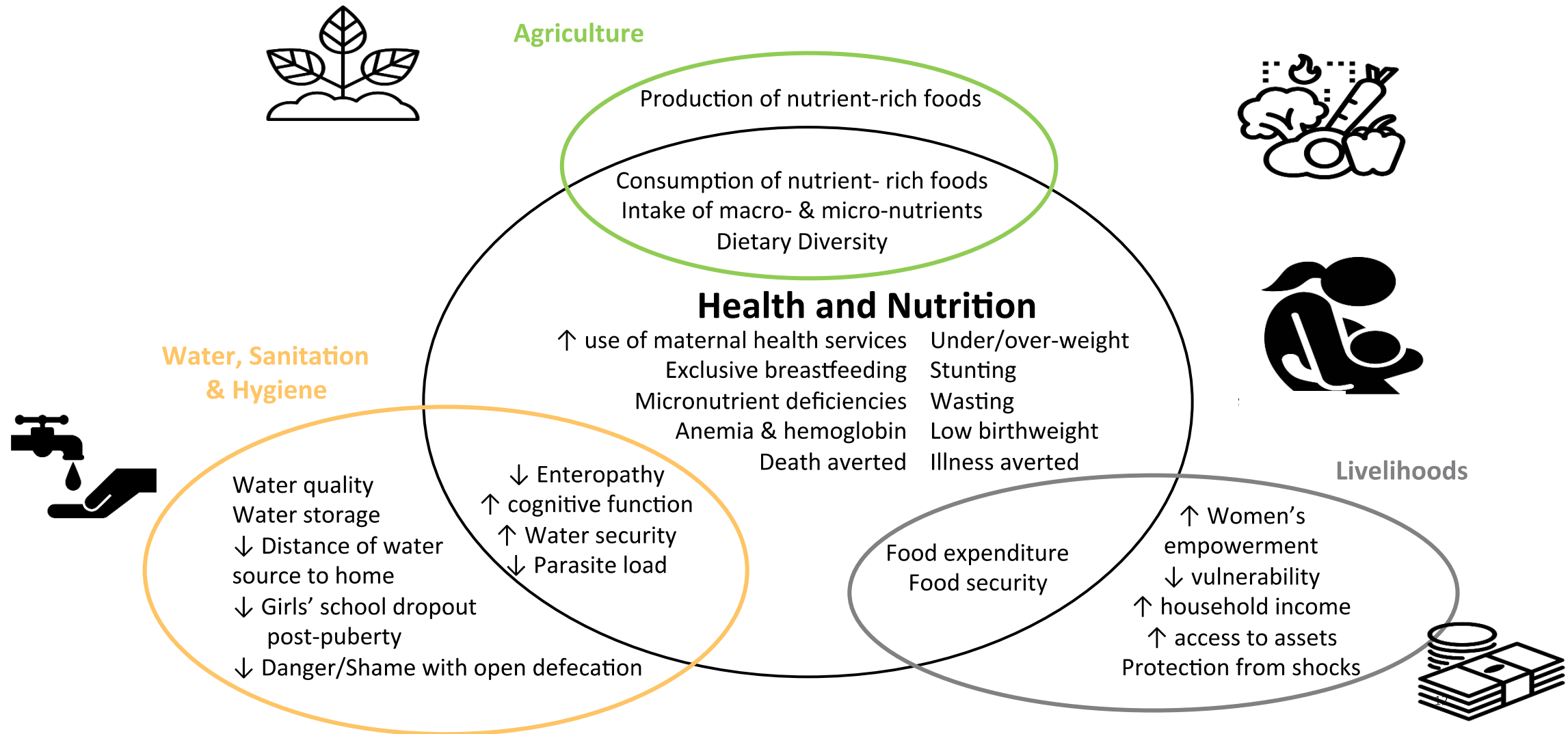


\*Example for agriculture activities, but do this for each intervention component!

# Standardized activity cost categories by implementation stage



# Estimate the costs of meeting a range of outputs and outcomes





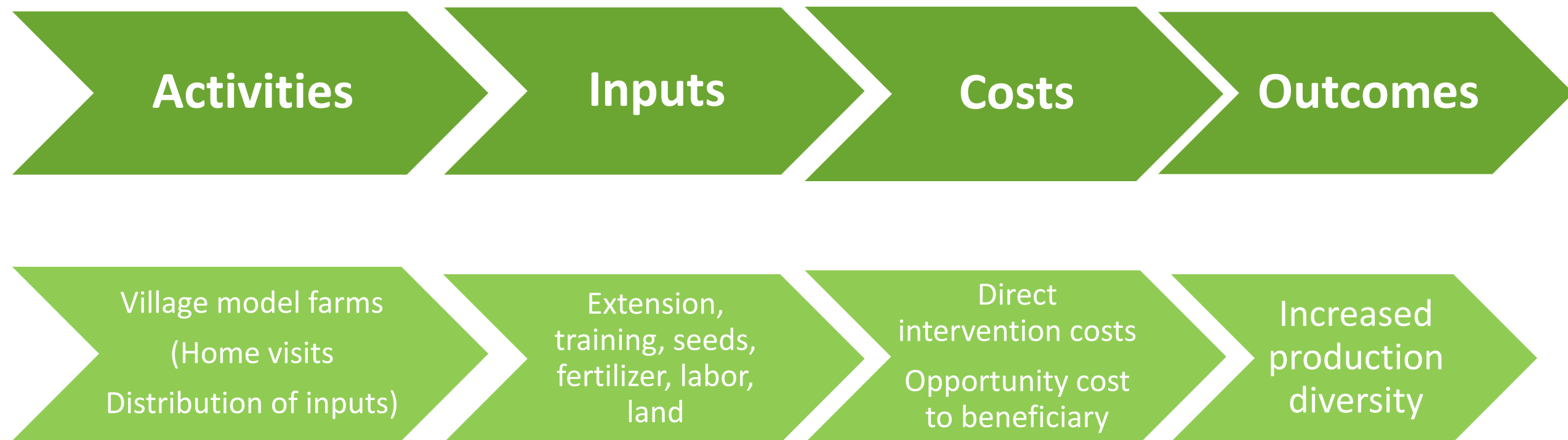


**What benefits are *you* likely to measure  
in your own research?**

**Text your answer in the chat box!**

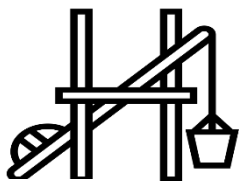
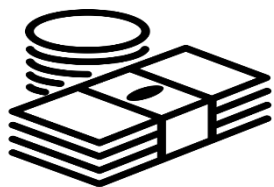


## Toward a standard set of outputs and outcomes\*



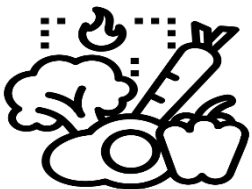
**\*Example for agriculture activities, but do this for each intervention component!**

# Tally program costs and compare with benefits

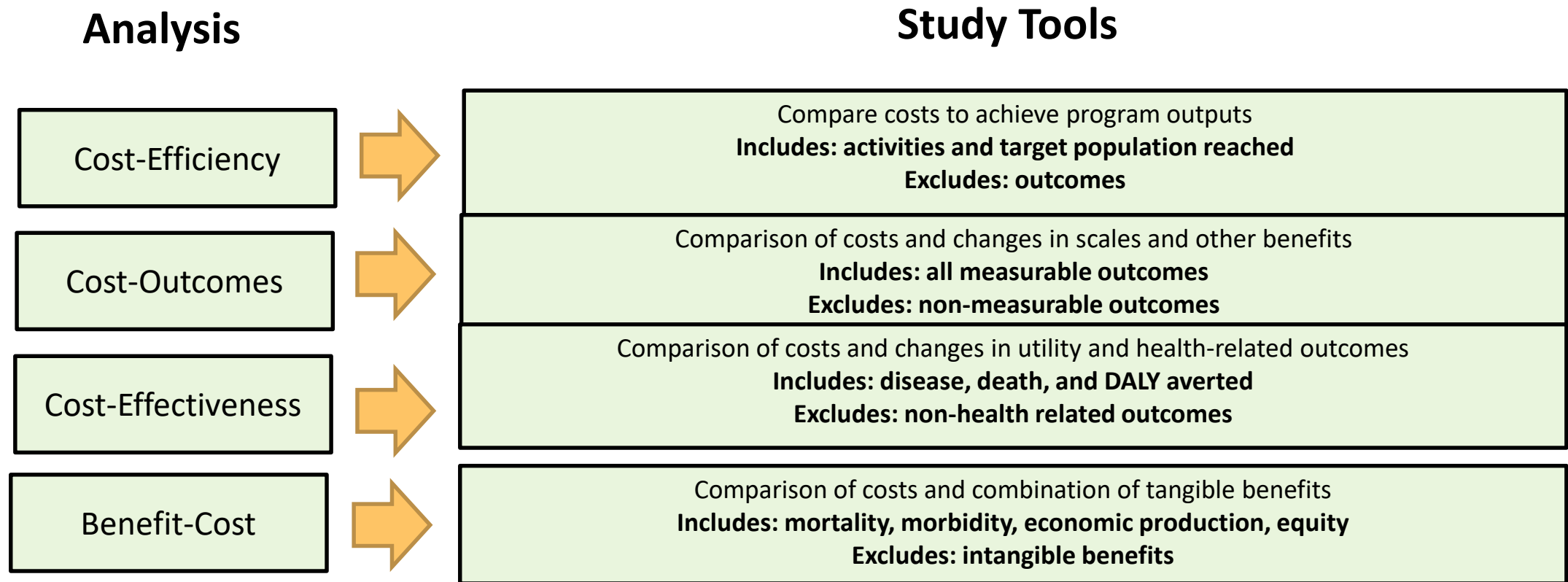


**Costs**

**Benefits**



# SEEMS-Nutrition is working on strengthening the measurement of multisectoral benefits!



**COMING to you in 2021!**

# Thank you!

## Acknowledgements:

UW team:

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