



Evidence Gap Map

Effects of food systems interventions on food security and nutrition outcomes in low- and middle-income countries



immmana

Innovative Methods and Metrics for
Agriculture and Nutrition Actions



german
cooperation

DEUTSCHE ZUSAMMENARBEIT

Implemented by:

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Agenda

- Conceptualization of the EGM
- Discussion of evidence gaps
- Recommendations



Objectives and research questions

Project Objectives

1: Identify and describe the evidence on the effects of food systems interventions on food security and nutrition outcomes in low- and middle-income countries (LMICs).

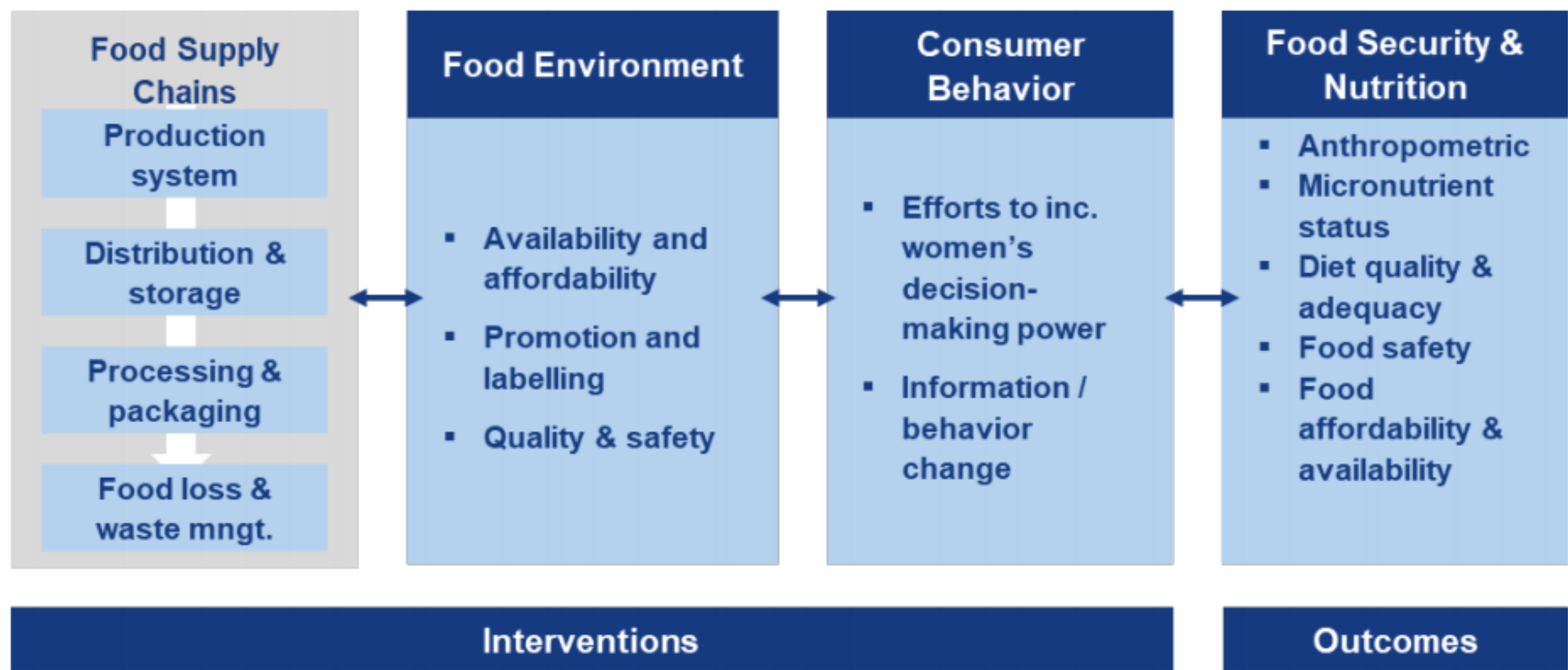
2: Improve access to this evidence for policy makers, researchers and development community.

3: Identify potential evidence and synthesis gaps.

Research Questions

- **RQ1 Coverage:** What available evidence is there on the effects of selected food systems/nutrition interventions on nutrition outcomes in LMICs?
- **RQ2 Gaps:** What are the major gaps in the primary evidence base?
- **RQ3 Research needs:** What intervention/outcome areas should be prioritised for primary research and/or evidence synthesis?

Focus of the EGM



Map shell



Intervention / outcome	Food safety	Food affordability & availability	Micro-nutrient status	Diet quality & adequacy	Developmental outcomes	Anthro-pometric
Production system						
Distribution & storage						
Processing & packaging						
Food loss & waste management						
Affordability & availability						
Promotion & labelling						
Women's empowerment						
Information / BCC						
Multicomponent						

Map shell



Intervention / outcome	Food	Provisions of:	Education through	Other efforts to improve the production system	Productive
Production system		<ul style="list-style-type: none">• Improved water access / management• Seeds• Fertilizers• Pesticides• Livestock• Mechanical equipment• Other	<ul style="list-style-type: none">• Farmer field schools• Ag. Extension programs• Other		
Distribution & storage					
Processing & packaging					
Food loss & waste management					
Affordability & availability					
Promotion & labelling					
Women's empowerment					
Information / BCC		<ul style="list-style-type: none">• Professional services• Classes• Door to door campaigns• Peer support			
Multicomponent					

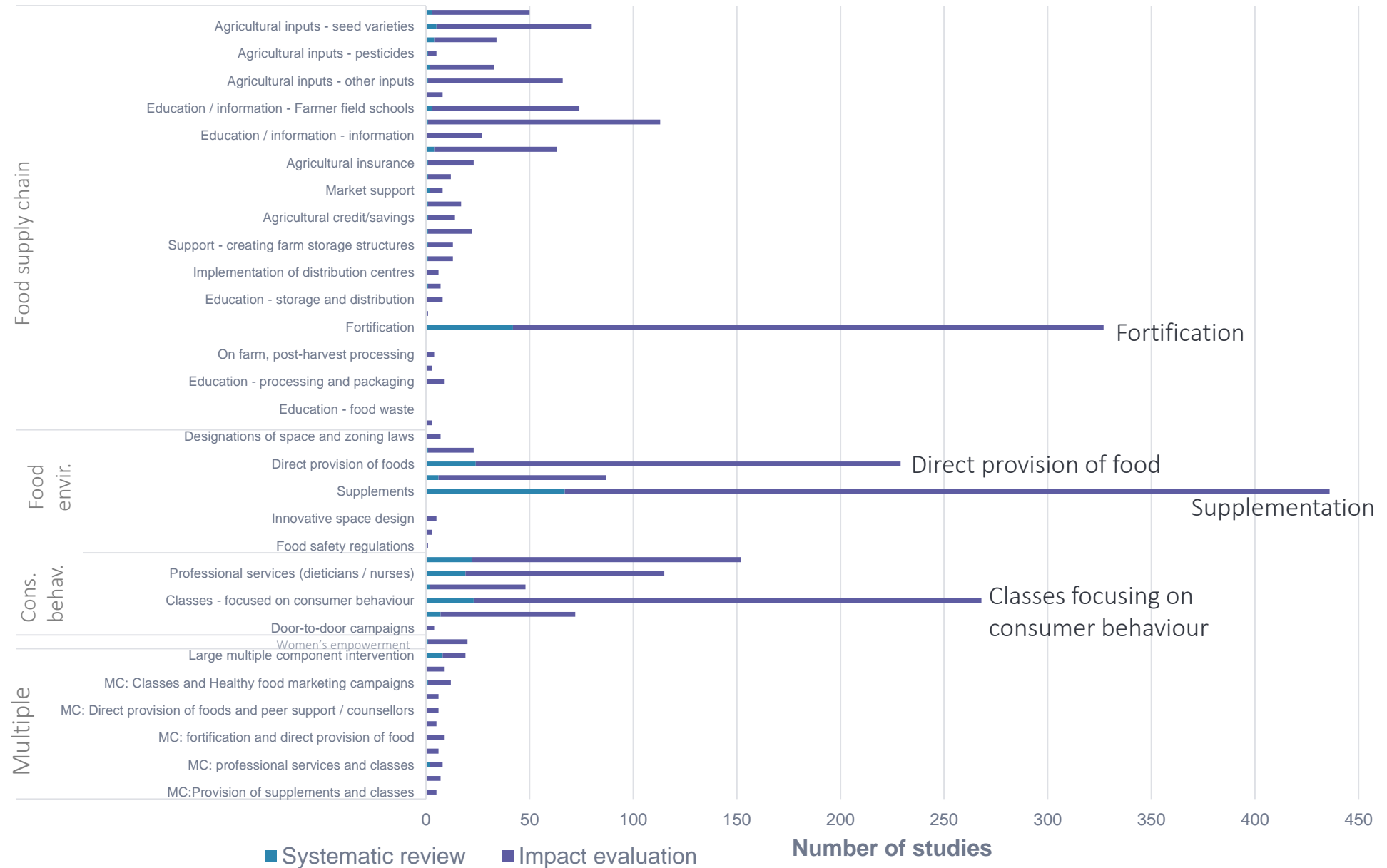
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Women's empowerment			
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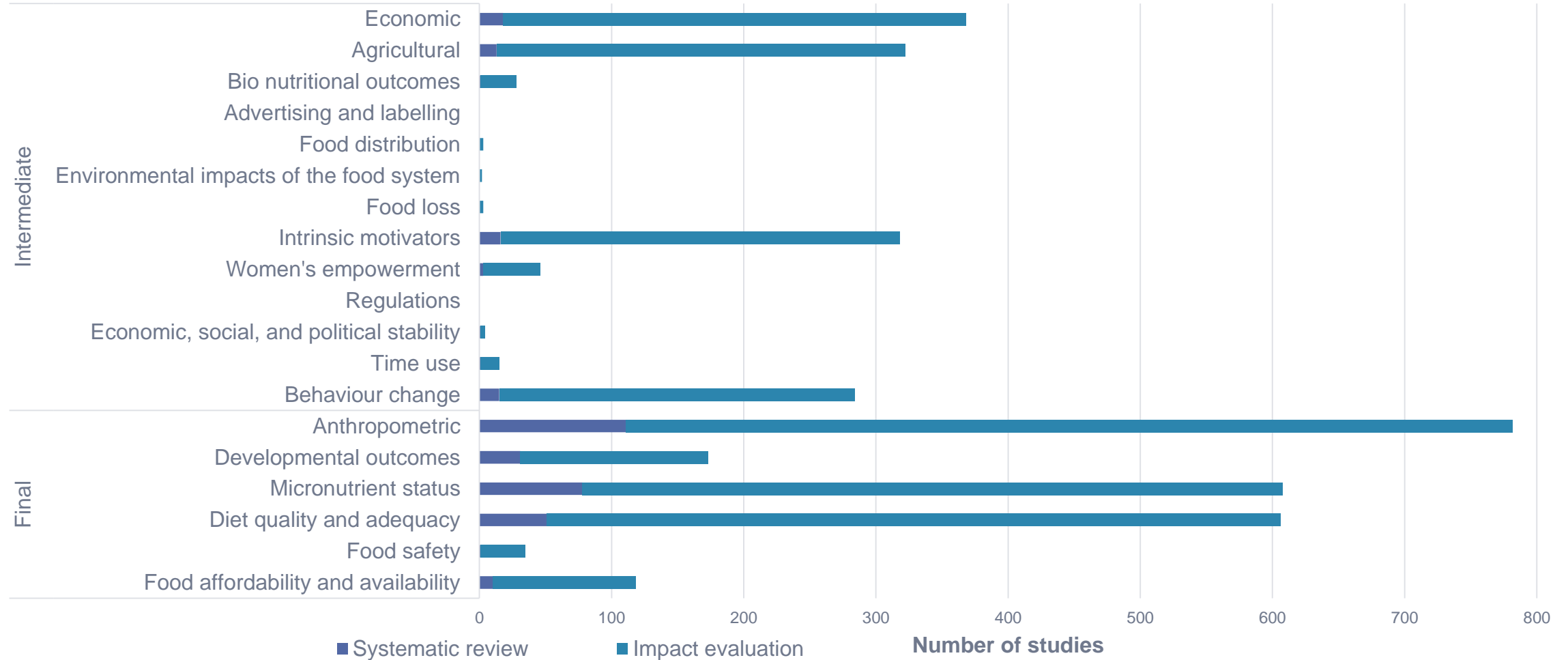
Intermediate outcomes

- Income
- Assets
- Food prices
- SES
- Purchasing behaviour
- Productivity
- Quality of inputs
- Nutrient content
- Trade
- Food loss

High variation in coverage of interventions



Final outcomes are more studied than intermediate outcomes



Distribution of outcomes. 3ie (2020).

Other key gaps



Under-researched but commonly implemented interventions:

Taxes on sugar sweetened beverages, labelling regulations for unhealthy foods, post-harvest processing



Few national policies evaluated:

National policies consume more resources and have broader reach. Although randomization can be difficult, quasi-experimental designs can be used.



Diverse methods needed:

Cost evidence and mixed methods are lacking.



Variation of diet quality and adequacy outcomes:

The 400 studies which used “other dietary quality and adequacy” outcomes represent an interesting gap for evidence synthesis.



Policy recommendations



Use of high-quality systematic reviews



Consider investing in under-researched areas



Be cautious when considering implementing under-researched interventions



Contextualise the evidence mapping with other sources

Triangulate results with other information sources to assess how meaningful the identified gaps are for your context. Other sources that can be used to support decision-making include:

- existing or planned research and interventions by government agencies and development partners.
- other forms of evidence, including implementation research, process evaluations, qualitative studies and programming administrative and monitoring information.
- existing theories of change and logical frameworks
- your own formative work and local knowledge

Additional detail on the EGM

EGM process



EGM process



		What?	How?	Outputs
1	Develop the EGM scope and approach	Define the scope, search strategy and data extraction approach.	Set research questions, inclusion/ exclusion criteria; involve advisory group.	EGM project protocol

EGM process

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3	Data extraction	Code studies for key intervention, quality and equity characteristics.	Identify linked reports, code study/intervention characteristics cross-cutting issues; critical appraisal of SRs.	Coded data for all included studies

EGM process

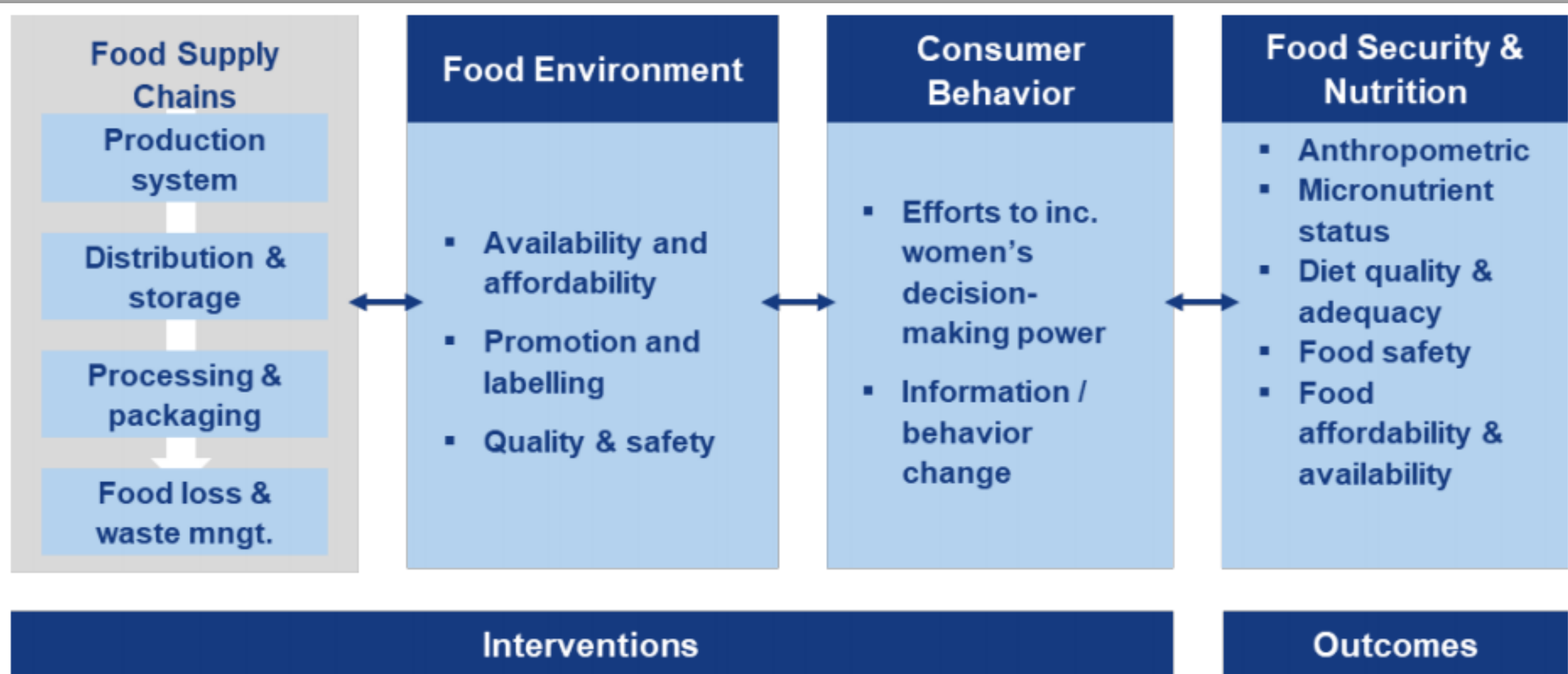


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4	EGM and Reporting	Create visual EGM and produce written analytical outputs.	Develop interactive map using 3ie software; report key themes and res./policy implications.	Visual online EGM; complementary report

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5	Outreach	Engage with relevant key stakeholders in the sector to promote evidence uptake/use.	Draft stakeholder engagement and comms. plan (SECP).	SECP; sector engagement events

Focus of the EGM



Basic EGM framework

		Outcome Categories			
		Outcome 1	Outcome 2	Outcome 3	Outcome 4
Intervention Categories	Intervention 1	Study A		Study A Study B	GAPS
	Intervention 2		Study B	Study B	
	Intervention 3	Study B	N/A	N/A	Study C Study D
	Intervention 4			Study C	Study C

The diagram illustrates the 'Basic EGM framework' as a grid of Intervention Categories (rows) and Outcome Categories (columns). A box labeled 'GAPS' is positioned in the top-right corner, with arrows pointing to specific study entries: Study A in Outcome 2 of Intervention 1, Study B in Outcome 3 of Intervention 1, Study B in Outcome 2 of Intervention 2, Study B in Outcome 3 of Intervention 2, Study B in Outcome 1 of Intervention 3, N/A in Outcome 2 of Intervention 3, N/A in Outcome 3 of Intervention 3, Study C in Outcome 3 of Intervention 4, and Study C in Outcome 4 of Intervention 4.

Final results

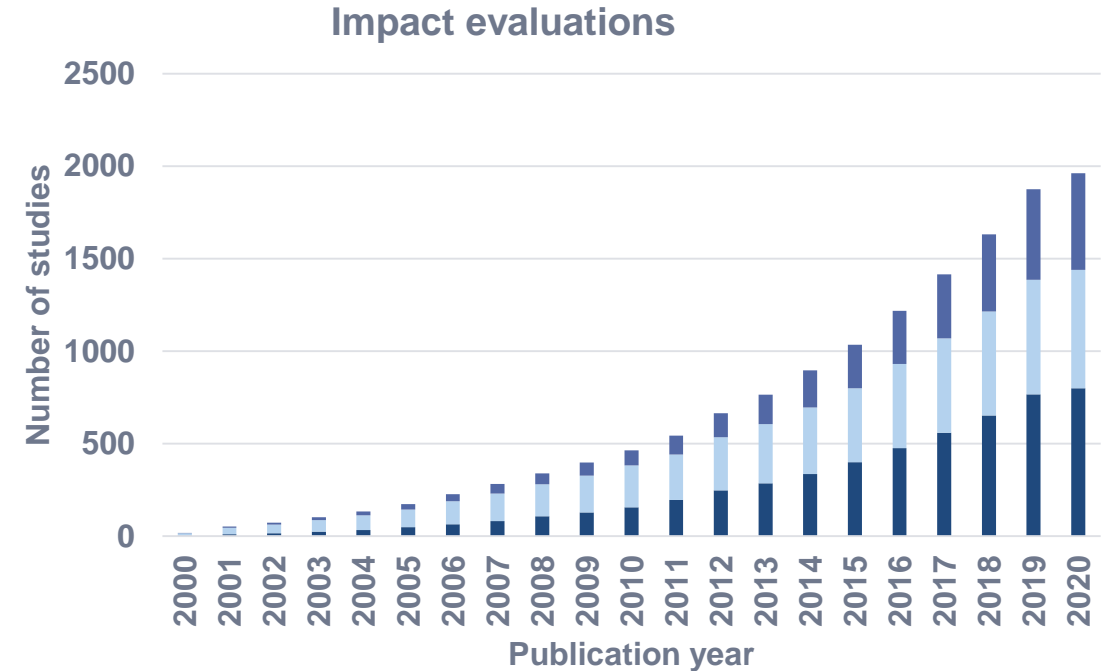
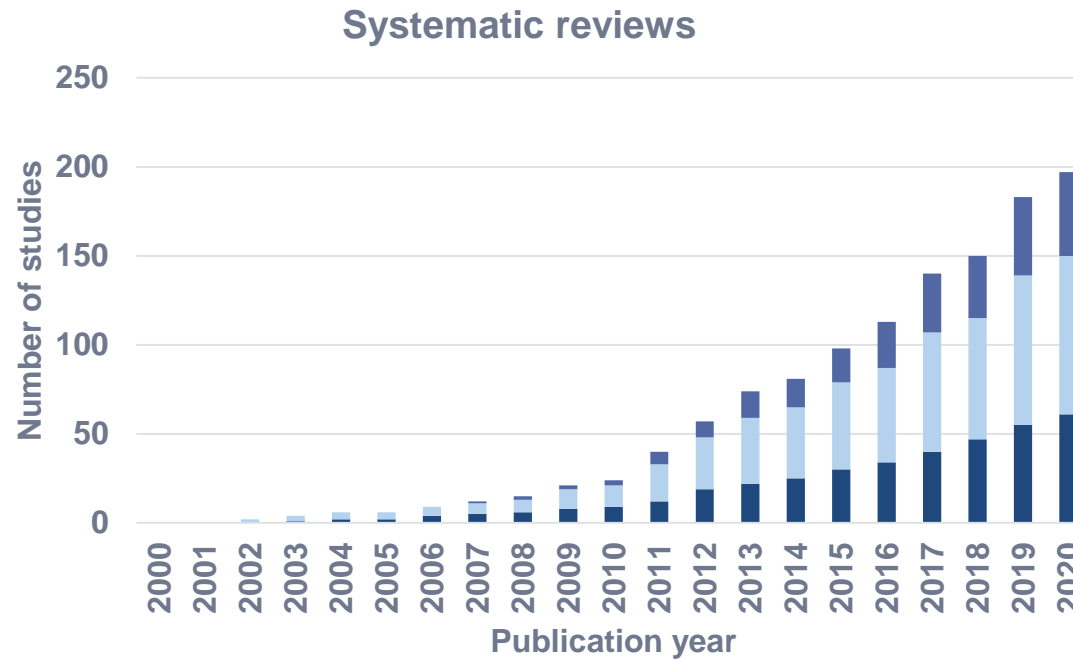
178 systematic reviews

1854 impact evaluations

- Progression of the evidence base
- Intervention coverage
- Outcome coverage
- Geography
- Population
- Methods



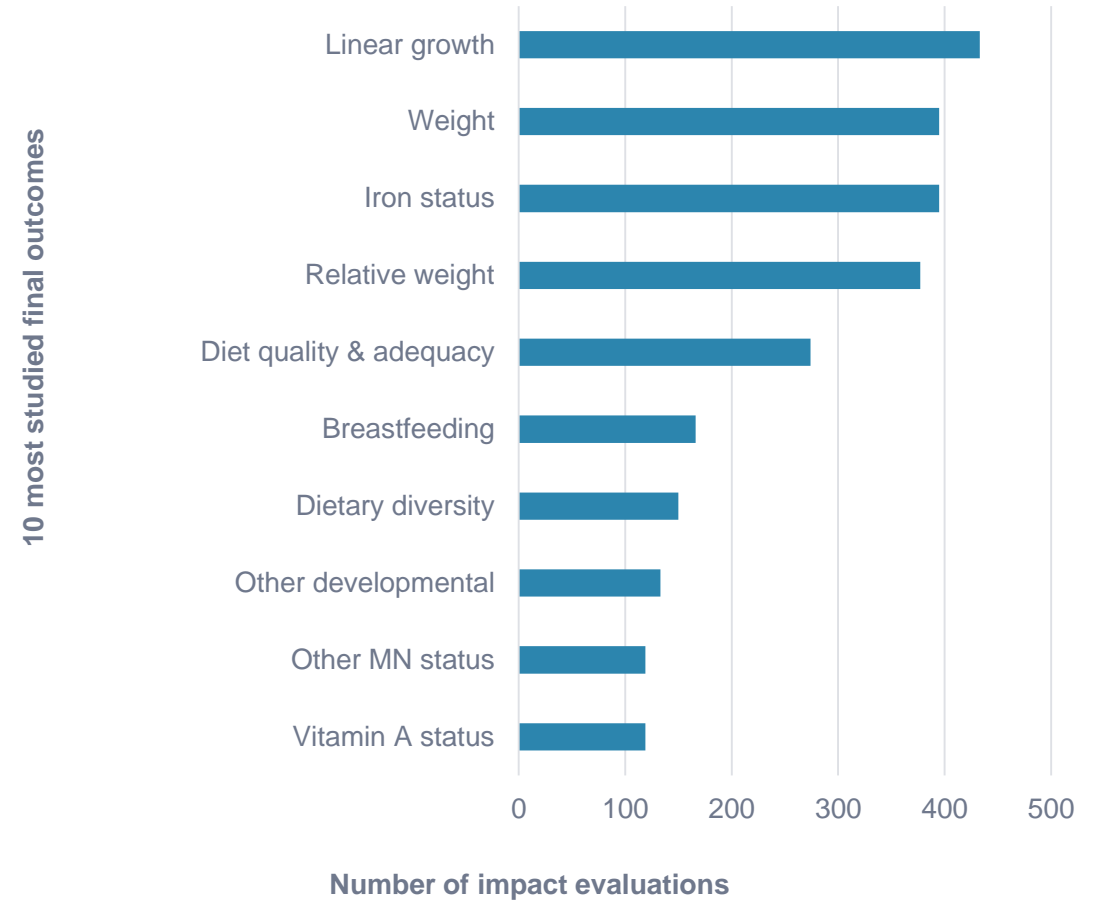
The evidence base is increasing...



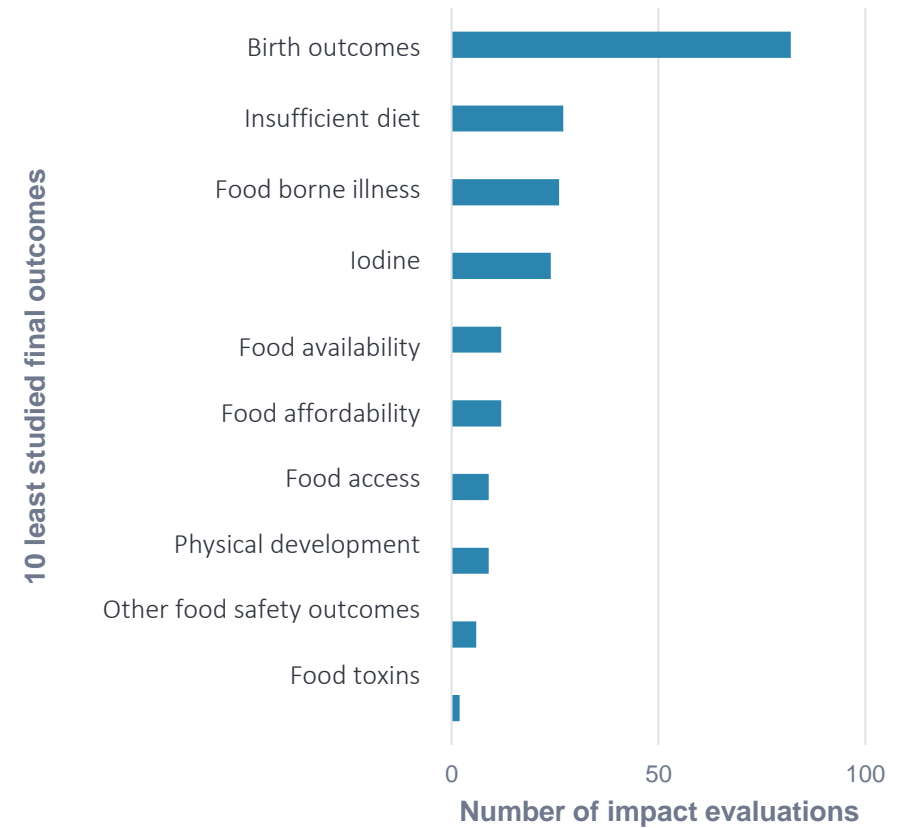
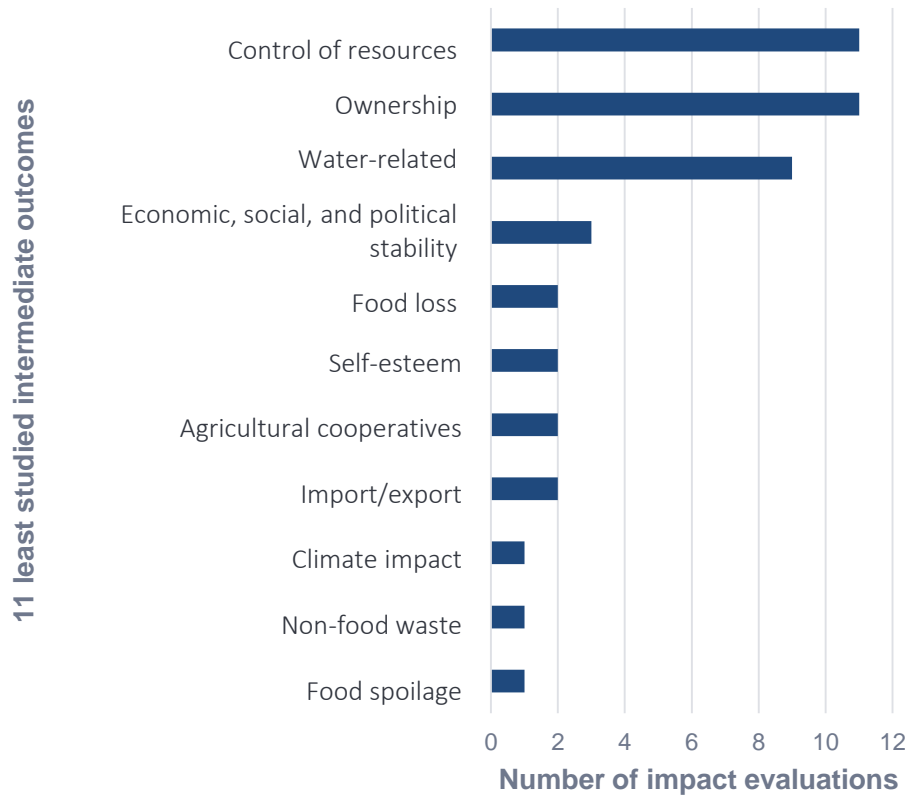
■ Food supply chain ■ Food environment ■ Consumer behaviour

Distribution of included studies over time by intervention domain. 3ie (2020)

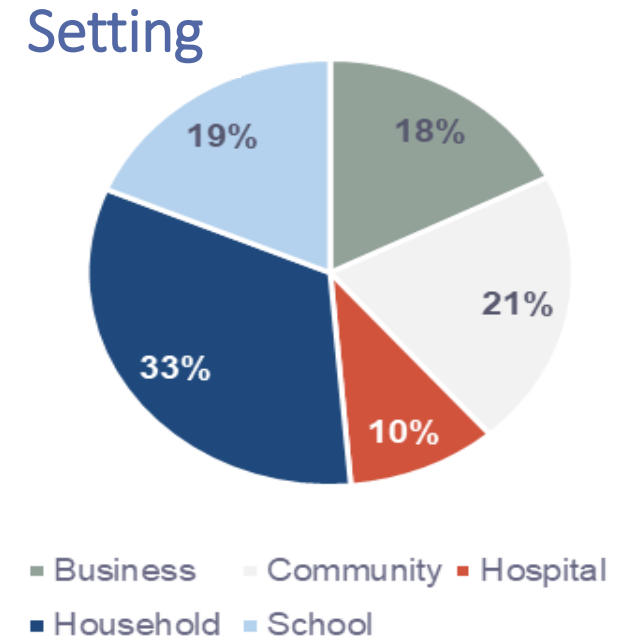
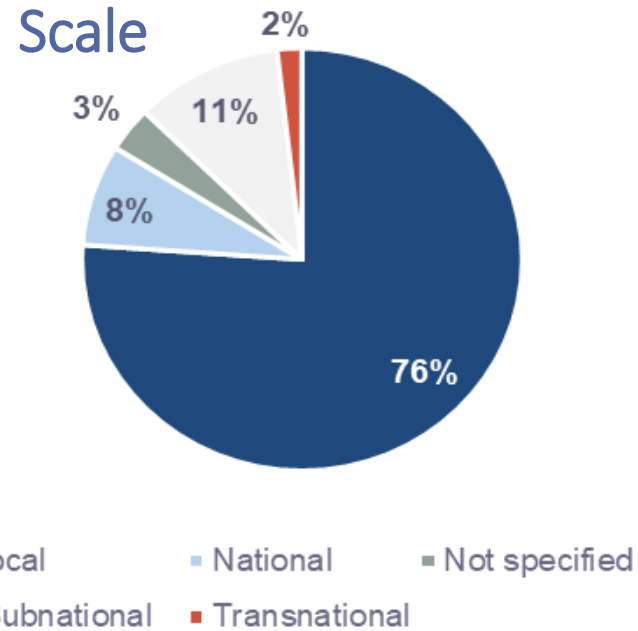
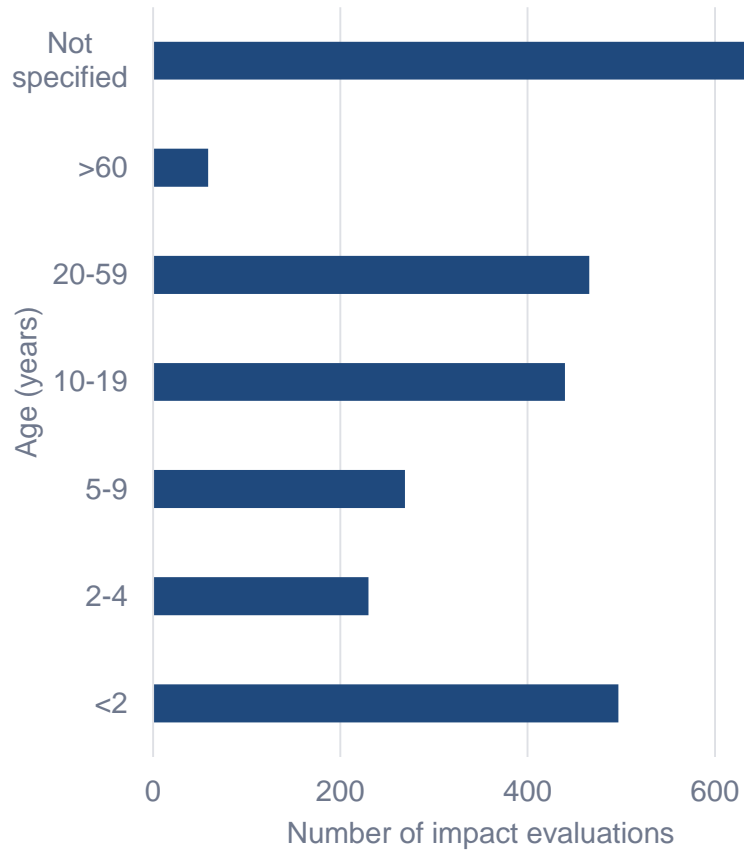
10 most studied outcomes



10 (+1) least studied outcomes



Focused on infants and local interventions



Distribution of included IE studies over by population characteristics. 3ie (2020)

RCT focus, with limited application of mixed-methods and cost analysis



• Impact evaluations

- **RCTs dominant:** Majority of studies are randomised evaluations (75%).
- **Limited use of mixed methods:** 186 studies (10%) complemented causal estimates with qualitative research
- **Limited reporting of cost data:** In total, 173 studies (9 percent) reported either cost data or analyses

• Systematic reviews

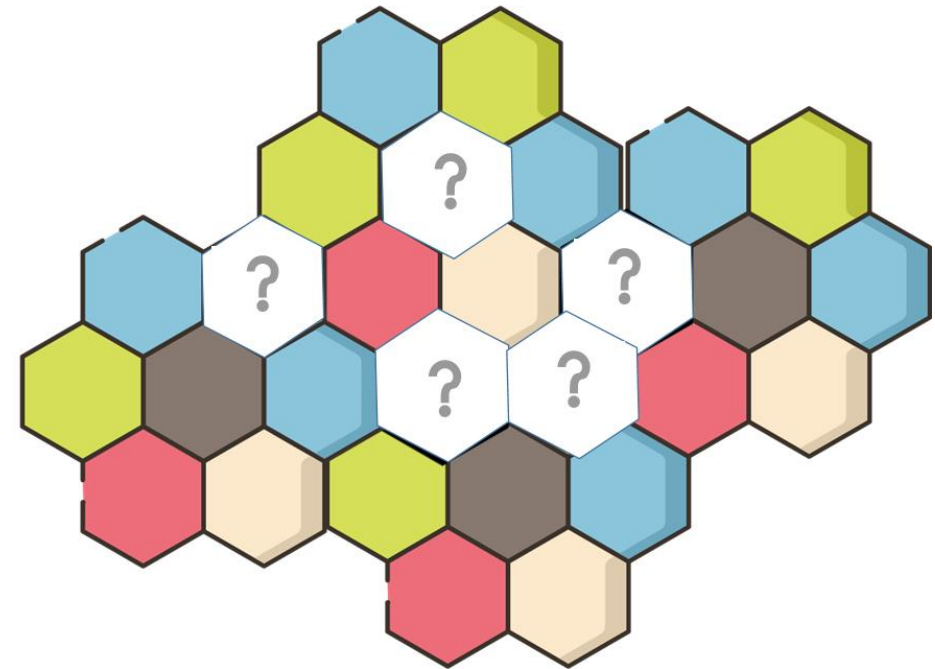
- **Confidence rating:**
 - 34 (19%) were rated **high** confidence
 - 46 (26%) were rated **medium** confidence
 - 95 (54%) were rated **low** confidence
- **Synthesis methods:** Meta-analysis (109 reviews, 62%) and descriptive analysis (56 reviews, 32%) were the most common synthesis methods employed in reviews.

Evidence gaps

Evidence distribution



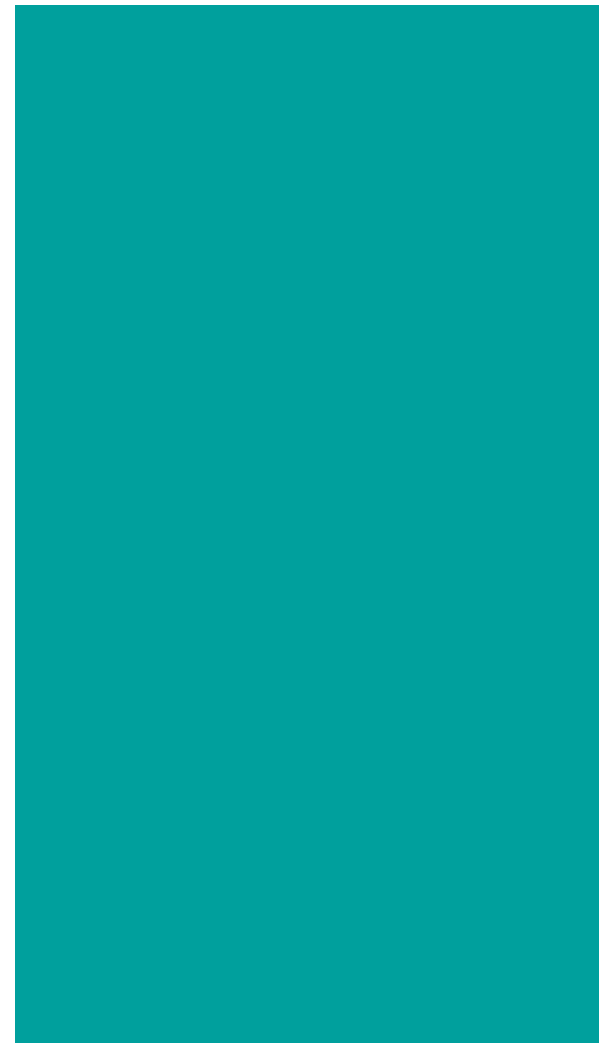
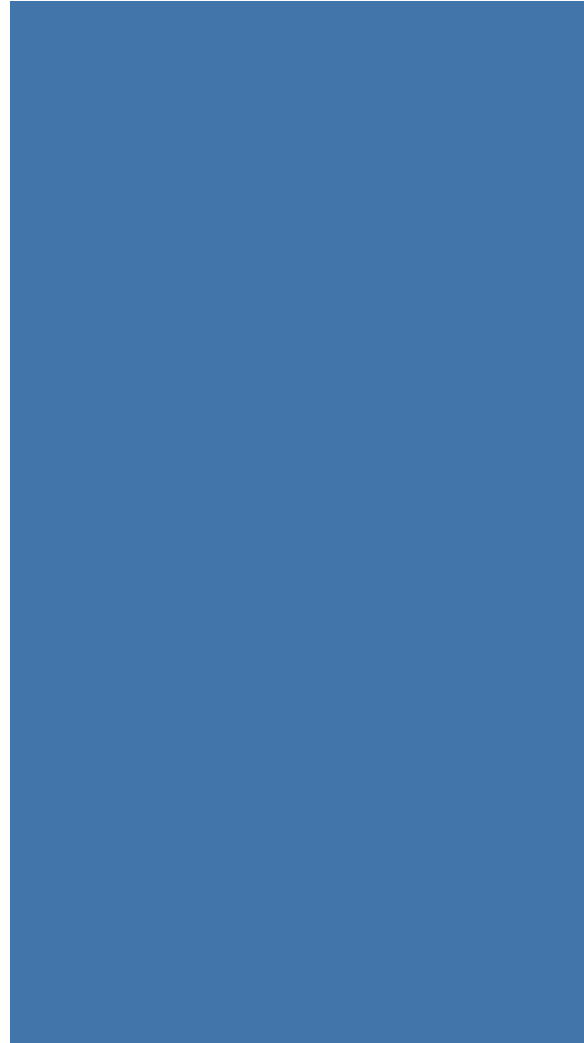
Other key gaps



Evidence distribution

Intervention / outcome	Food safety	Food affordability & availability	Micro-nutrient status	Diet quality & adequacy	Develop-mental outcomes	Anthro-pometric
Production system	4	54	20	84	3	44
Distribution & storage	1	8	1	8	0	3
Processing & packaging	7	6	215	48	49	145
Food loss & waste management	0	0	0	1	0	0
Affordability & availability	19	37	286	158	68	316
Promotion & labelling	0	1	0	3	0	1
Women's empowerment	0	3	3	6	1	4
Information / BCC	10	11	57	301	36	235
Multicomponent	0	9	16	43	8	49

Other key gaps



Other key gaps



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Recommendations



Opportunities for future research



Other research recommendations



Policy recommendation

Opportunities for future research (Illustrative lists)

Interventions

- Government manipulations of price
- Advertising and labelling regulations
- On-farm, post-harvest processing
- Efforts to support women's empowerment within the food system
- Interventions to support food packaging
- Innovative store design
- Cold chain storage

Outcomes

- Women's empowerment
- Economic, social, and political stability
- Food loss
- Environmental impacts of the food system
- Measures of diet insufficiency



Evidence synthesis

- Agricultural extension and information sharing activities within the food value chain
- Provision of free or reduced-cost farm inputs to crop production
- Educational approaches within the food value chain
- Agricultural insurance products
- Outcomes related to other diet quality and adequacy measures

Research recommendations



- Nuanced analysis in well-researched areas
- Pursue cost and mixed-methods evidence
- Assessment of effects where randomisation is not possible
- Research should seek to address food systems complexity
- Standardize outcome measures relating to diet quality and adequacy

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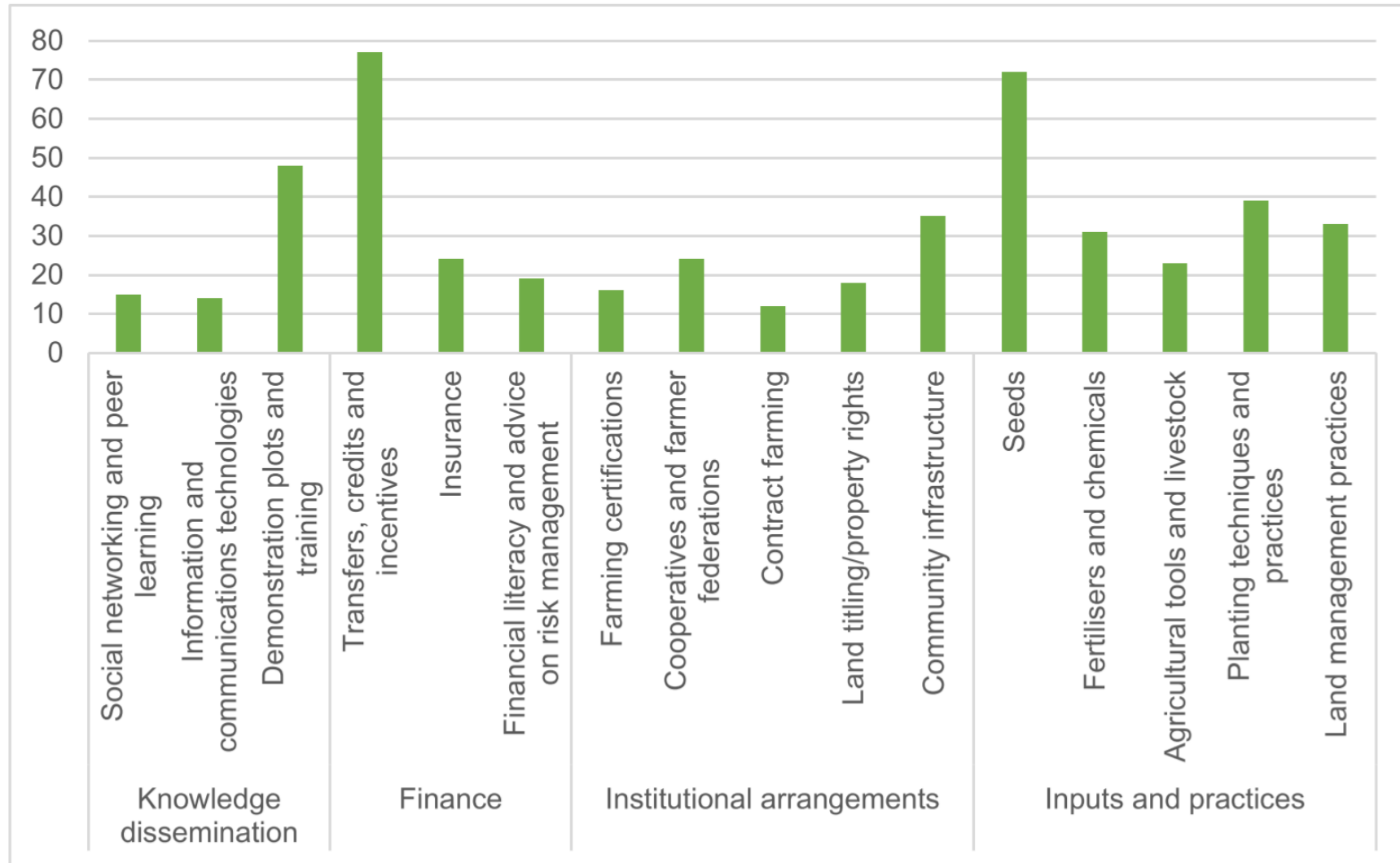
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Agricultural Innovations EGM

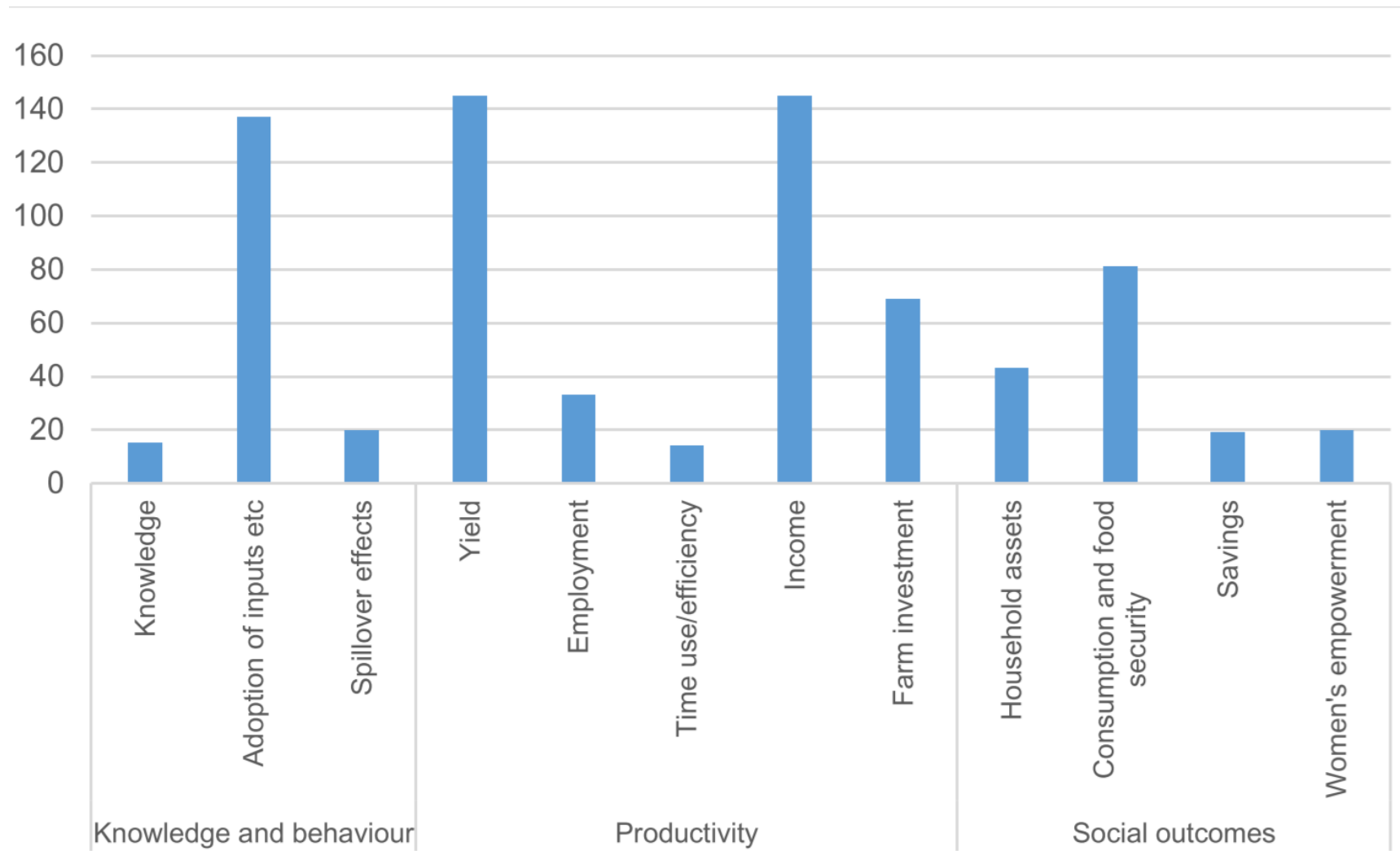


2017 EGM published with similar results

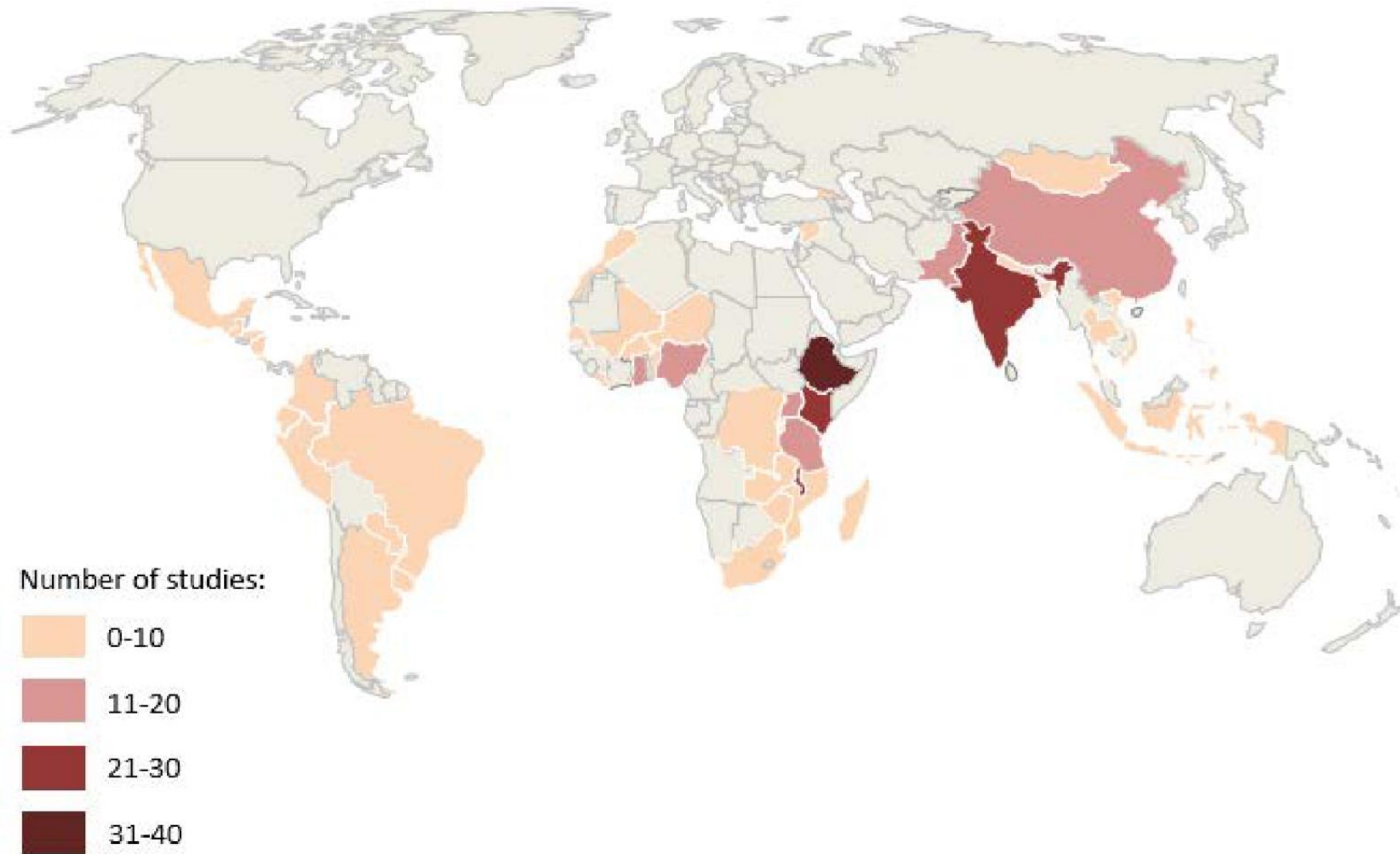
Interventions



Outcomes



Geographic locations





Thank you



International
Initiative for
Impact Evaluation

www.3ieimpact.org

Impact evaluations by year

