Implementation Science in Nutrition: Rationale, Frameworks and Introduction to the Society

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Presentation Outline

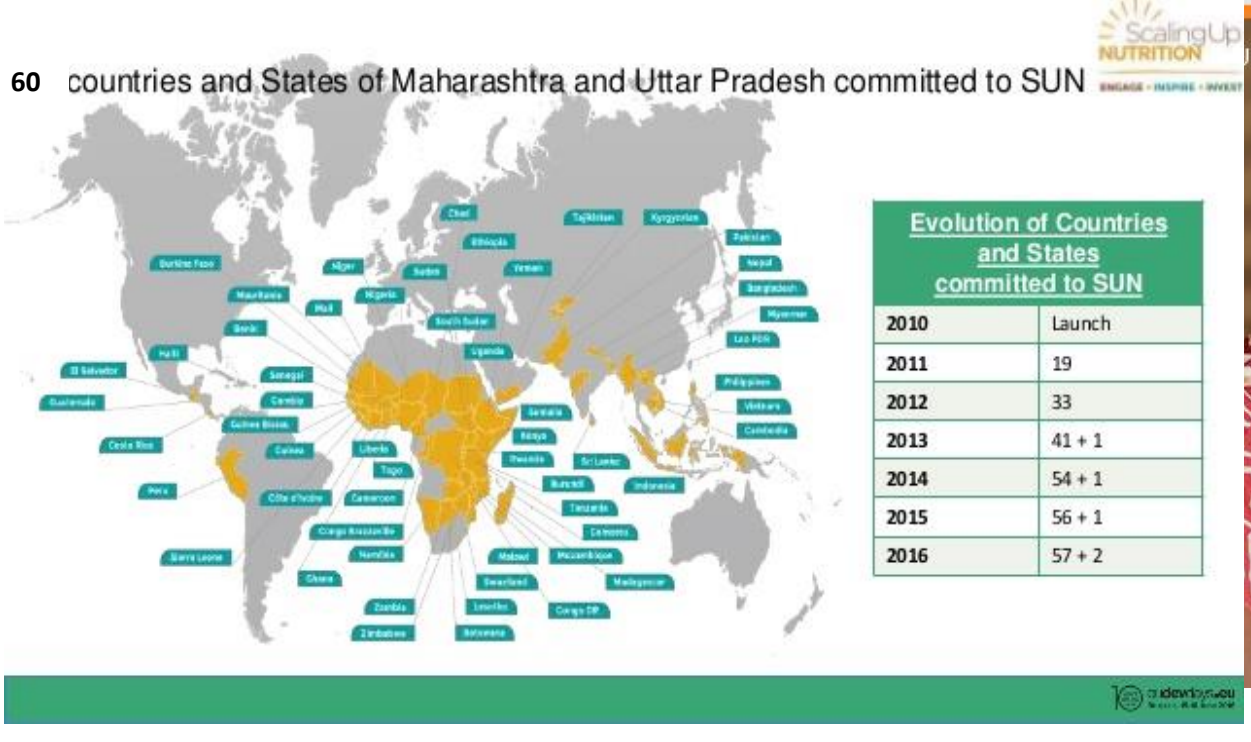
1. **The Implementation Opportunity and Challenge**
2. **Definitions, Distinctions and Frameworks**
   - Implementation
   - Implementation research and a classification scheme
   - Implementation science
   - Implementation knowledge
3. **SISN's Integrative Framework**
4. **The Society for Implementation Science in Nutrition**

The Opportunity

Scaling Up NUTRITION

ENGAGE • INSPIRE • INVEST

60 countries are leading a global movement to end malnutrition in all its forms.



Evolution of Countries and States committed to SUN	
2010	Launch
2011	19
2012	33
2013	41 + 1
2014	54 + 1
2015	56 + 1
2016	57 + 2

Image source: http://scalingupnutrition.org/

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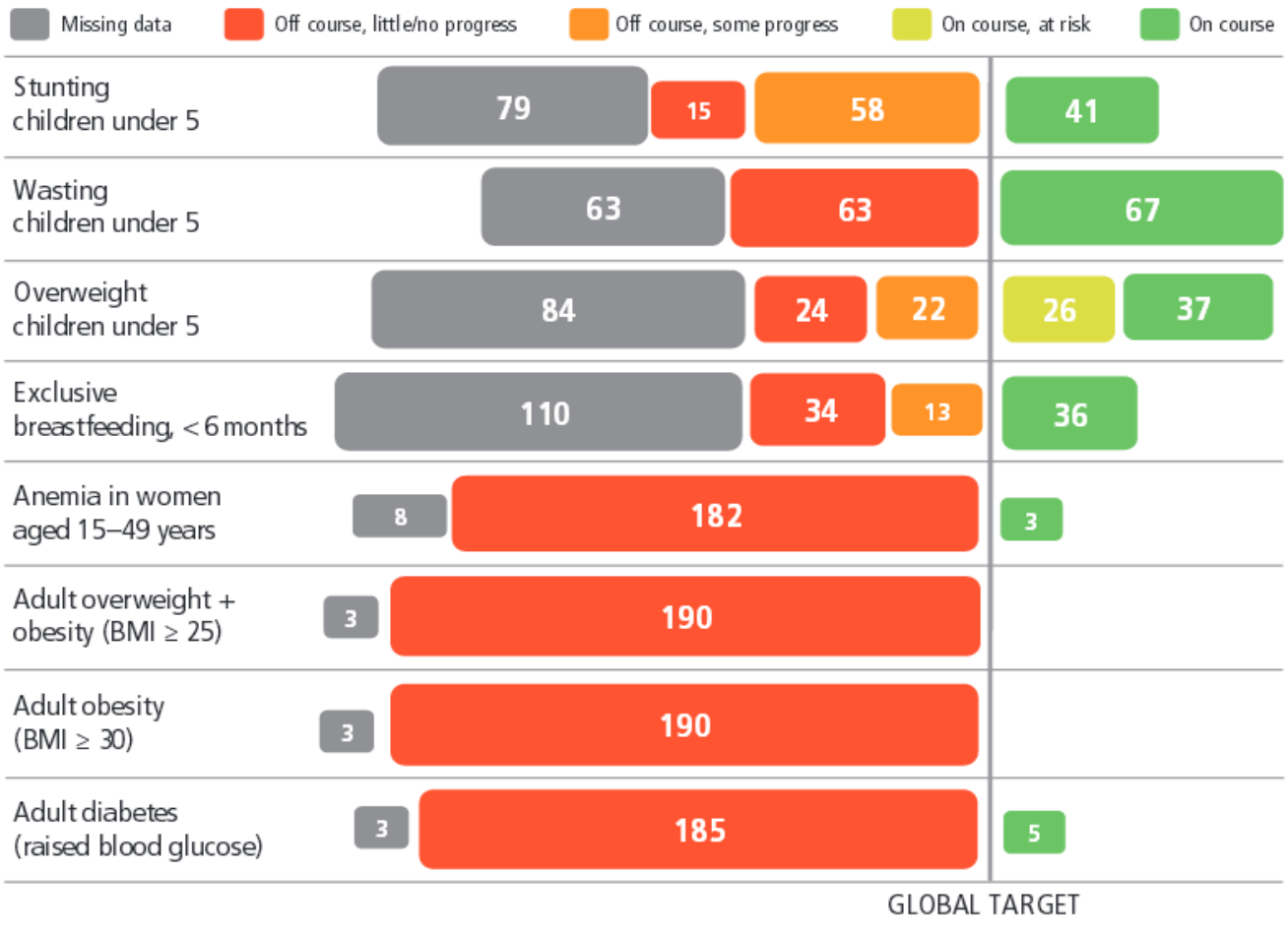
The Challenge

FIGURE 2.3 Number of countries at various stages of progress against the global targets on nutrition



Source: Global Nutrition Report 2016

The Challenge

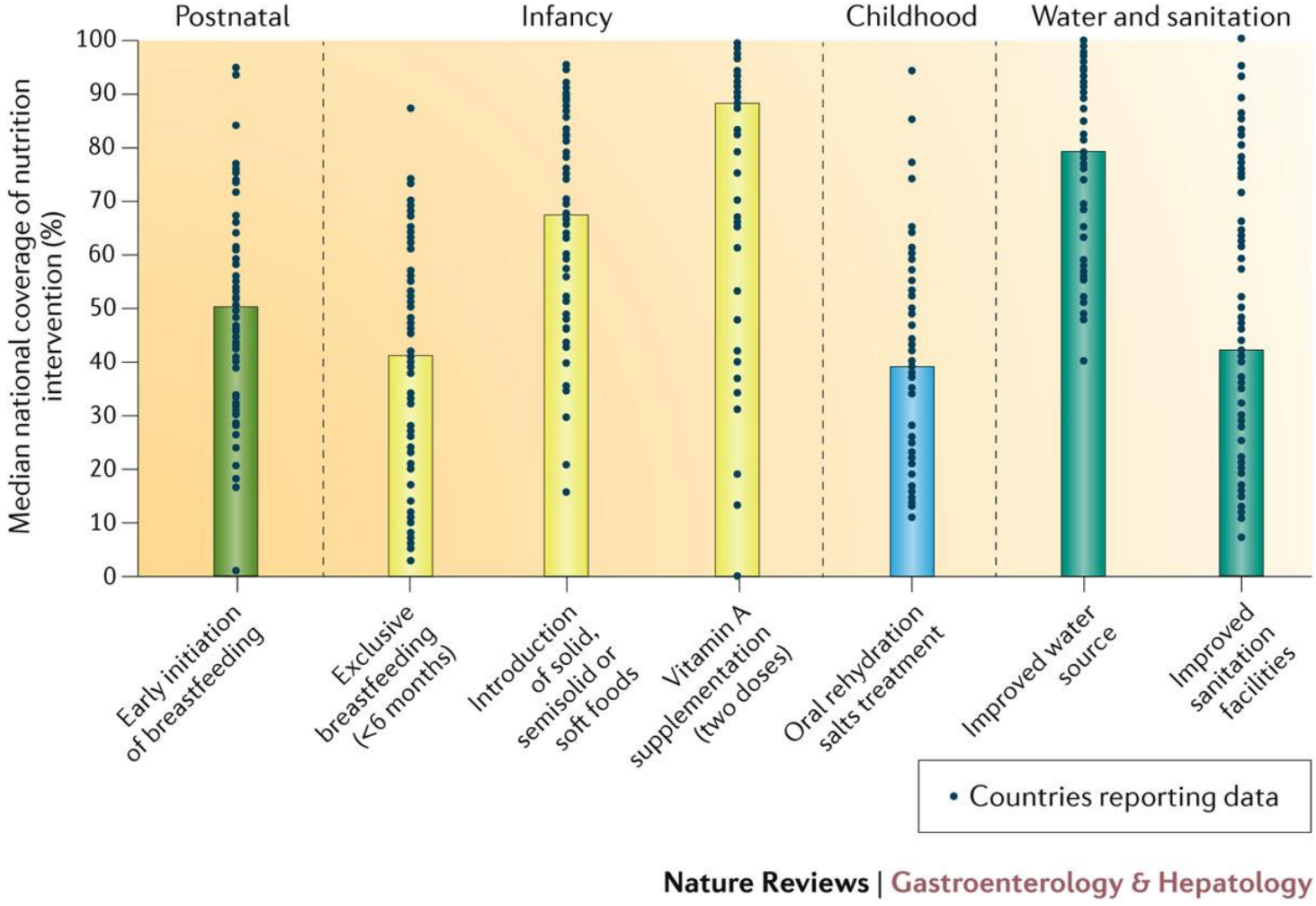


Figure 1: Median coverage and distribution by country of selected nutrition sensitive and specific interventions and behaviors

Source: Bhutta, Z. A. Nat. Rev. Gastroenterol. Hepatol. 2016 Aug;13(8):441-2

The Challenge

The Quality of Health Care Delivered to Adults in the United States

N ENGL J MED 348;26 WWW.NEJM.ORG JUNE 26, 2003

Table 4. Adherence to Quality Indicators, According to Mode.

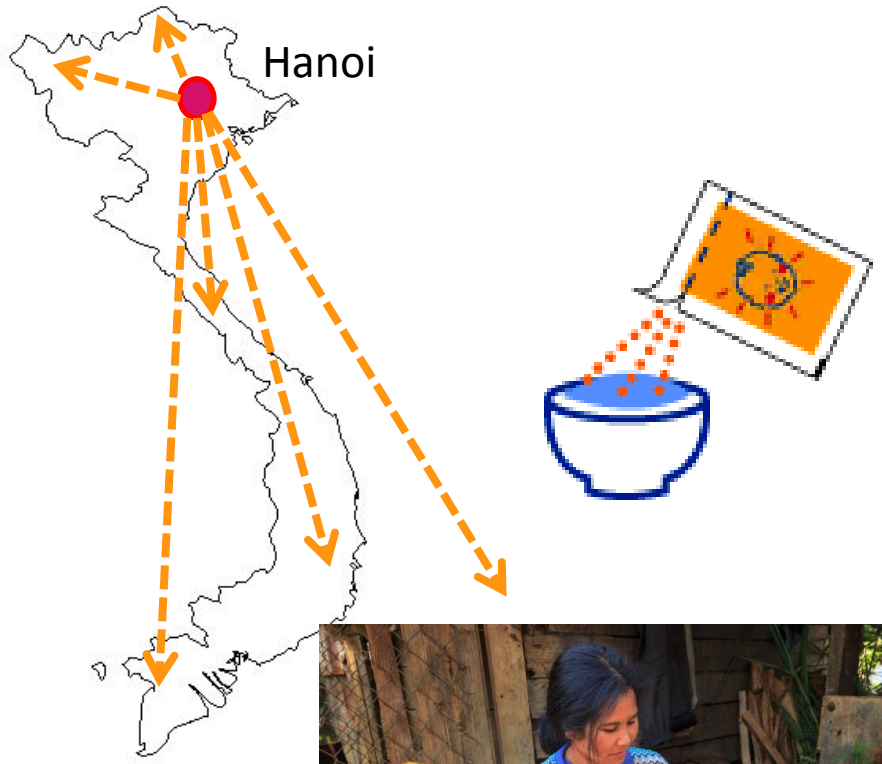
Mode	No. of Indicators	No. of Participants Eligible	Total No. of Times Indicator Eligibility Was Met	Percentage of Recommended Care Received (95% CI)*
Encounter or other intervention	30	2843	4,329	73.4 (71.5–75.3)
Medication	95	2964	8,389	68.6 (67.0–70.3)
Immunization	8	6700	9,748	65.7 (64.3–67.0)
Physical examination	67	6217	19,428	62.9 (61.8–64.0)
Laboratory testing or radiography	131	5352	18,605	61.7 (60.4–63.0)
Surgery	21	244	312	56.9 (51.3–62.5)
History	64	6711	36,032	43.4 (42.4–44.3)
Counseling or education	23	2838	3,806	18.3 (16.7–20.0)

The Challenge

An Example: What factors might affect the effectiveness of a national micronutrient powder intervention?

A short list:

- Govt approval/registration
- Procurement
- Partner support
- Logistics/ distribution
- Inventory management
- Mother's concerns
- Grandmother's concerns
- Household supplies
- Caregiver knowledge & compliance
- Health worker counseling quality
- Training of health workers
- Broader SBCC initiatives
- etc.



The Reason for the Challenge

Nutrition Interventions

The Black Box of Implementation

Nutrition Outcomes

Nutritional Status

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Why We Need Careful Definitions and Thoughtful Frameworks for Implementation Science

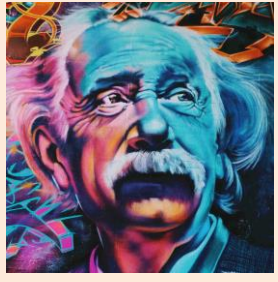
"If all we have is a hammer, everything looks like a nail"

- Conventional notions of "**research**" may not meet the needs of implementers, in terms of the questions, methods, timeliness and dissemination

"If we keep doing what we are doing, we'll keep getting what we're getting"

- Conventional notions of **"implementation"** may not include all the relevant decisions and processes that affect programmatic effectiveness, scale and quality

"We can not solve our problems with the same level of thinking that created them" Einstein



Hammer image source: https://stlong.files.wordpress.com/2011/06/hammer_nail.jpg

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Some Sobering Quotes About Implementation

'Information dissemination alone (research literature, mailings, promulgation of practice guidelines) is an ineffective implementation method, and training (no matter how well done) by itself is an ineffective implementation method." (Fixsen 2005)

"The 'train-and-hope' approach to implementation does not appear to work."
(Stokes & Baer, 1977)

"We are faced with the paradox of non-evidence-based implementation of evidence-based programs."
(Drake, Gorman & Torrey, 2002)

Some Sobering Statistics and Quotes About Research

"We know what to do but we don't know how to do it"

- "Health research is conducted with the expectation that it advances knowledge and eventually translates into improved health systems and population health. However, research findings are often caught in the know-do gap: they are not acted upon in a timely way or not applied at all." (Graham et al., 2018)

- At NIH: $30 billion each year on basic and efficacy research.
- At the Agency for Healthcare Research and Quality(in 2010): $270 million on research relevant to health quality, dissemination, and outcomes.

"For each dollar spent in discovery, mere pennies are spent learning how interventions known to be effective can be better disseminated." (Glasgow et al., 2012)

Some Sobering Statistics and Quotes About Research

"We know what to do but we don't know how to do it"

- 97% of child health research (2000-4) funded by NIH and BMGF focused on mechanistic research and development of new technologies, with only 3% related to delivery of existing interventions. *(Leroy et al., AJPH 97(2), 2007)*

  But child mortality can be reduced by 62% through coverage of existing interventions (Lancet Child Survival Series, 2003)

- 97% of intervention evaluations in Lancet Paper 3 (2008) were small-scale trials testing the efficacy of interventions, with only 3% testing effectiveness at larger scale

  But stunting can be reduced by 36% through high coverage of existing interventions (Bhutta et al., 2008)

Some Conventional Practices in Implementation and Research

Nutrition Interventions

The Black Box of Implementation

Nutrition Outcomes

Efficacy and Effectiveness Trials

Nutritional Status

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Building a Science of Implementation
Frameworks, Syntheses, Terminology, Guidelines and Tools

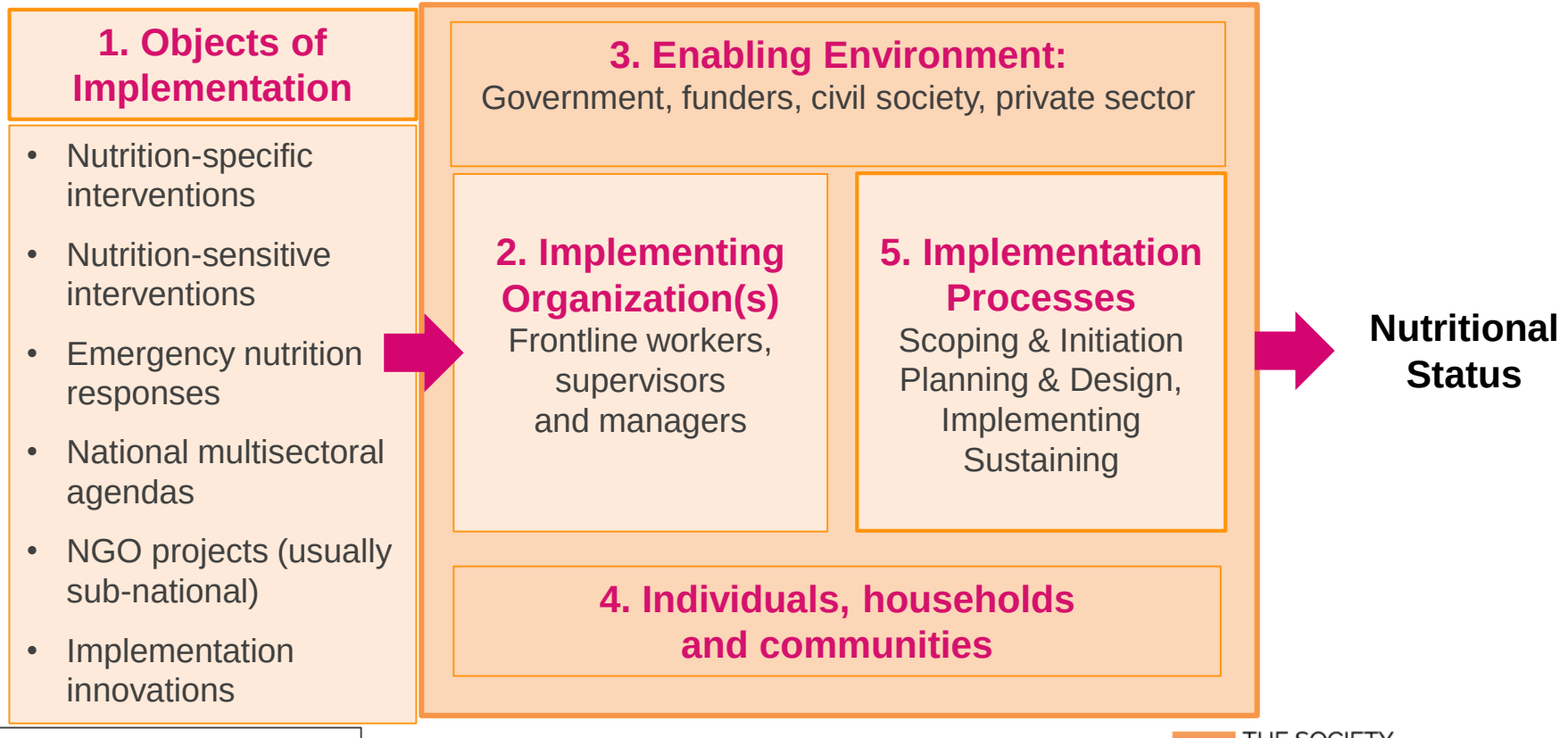
1. **Frameworks: RTP, Translational, Dissemination and Implementation**
   - A. CDC-Inspired Frameworks
     - DHAP/RTP (Collins 2006, Lyles PRS 2006, Neumann REP 2000)
     - CDC DVP/ISF/QIF/QIT (Wandersman 2008 ISF; Saul 2008, 10 challenges; Meyers 2012)
     - CDC/DHAP/RTP vs CDC/DVP/ISF (Collins, 2012, a comparison)
   - B. The Implementation Process (Durlak, 500 studies of factors affecting implementation)
   - C. Dissemination & Implementation Models (Tabak, 60 models)
   - D. Consolidated Implementation Frameworks (CFIR, Aarons – conceptual, generic)
2. **Capacity (individual, organizational, community)(Flaspohler et al., 2008)**
3. **Support/TA/Brokering Systems (ISF) (Chinman, GTO; Nadeem, updated GTO, Ward on Brokering)**
4. **Reporting Guidelines**
   - A. D/I Research (comprehensive) (Neta, Glasgow et al.)
   - B. Implementation Strategies (Proctor; Gold; Leeman)
   - C. Complex Behavioral Interventions (Michie)
   - D. Implementation Outcomes (Proctor)
5. **D&I Terminology and Constructs Measurement (Rabin)(GEM/NCI)**

Implementation

"Implementation involves systematic and planned efforts within a system (or organization) to introduce and institutionalize a policy, plan, program, intervention, guideline, innovation or practice and ensure its intended effects and impacts."

(adapted fromWHO/TDR Implementation Research Toolkit, 2014)

Opening the Black Box of Implementation (Five Domains)



Adapted from Damschroeder et al., *Implementation Science* 4:50, 2009

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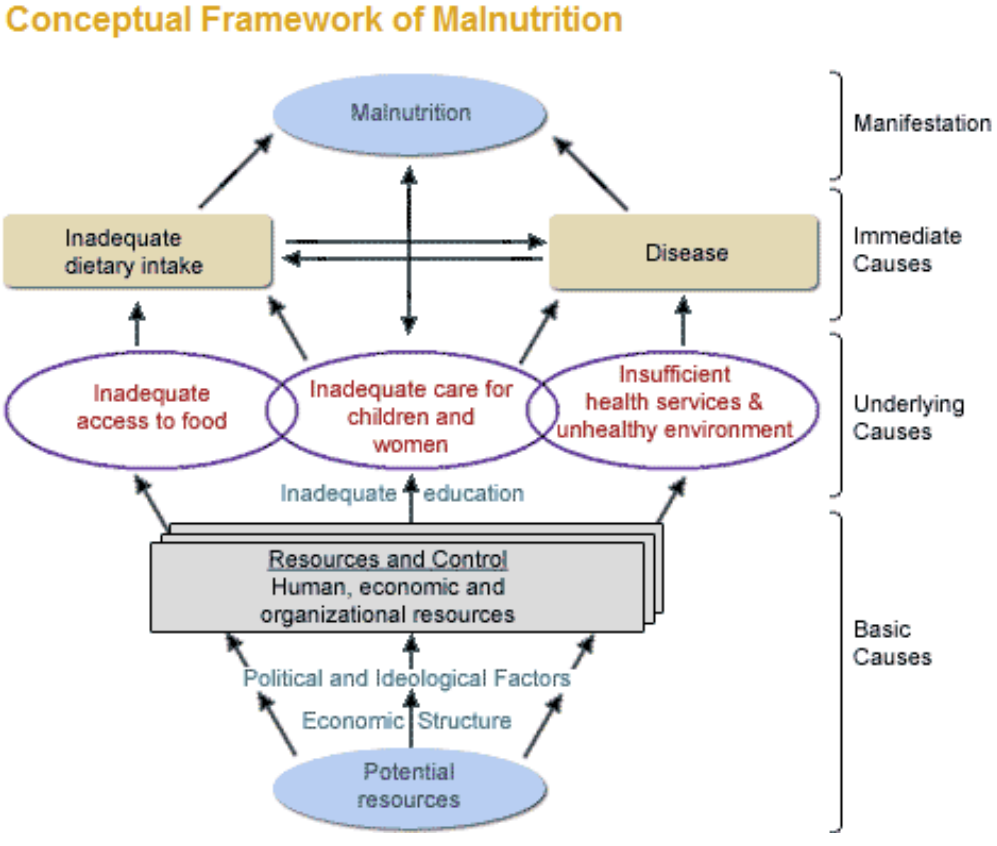
Conceptual Frameworks as Entry Points for Deeper Analysis: Parallels with the UNICEF Nutrition Strategy



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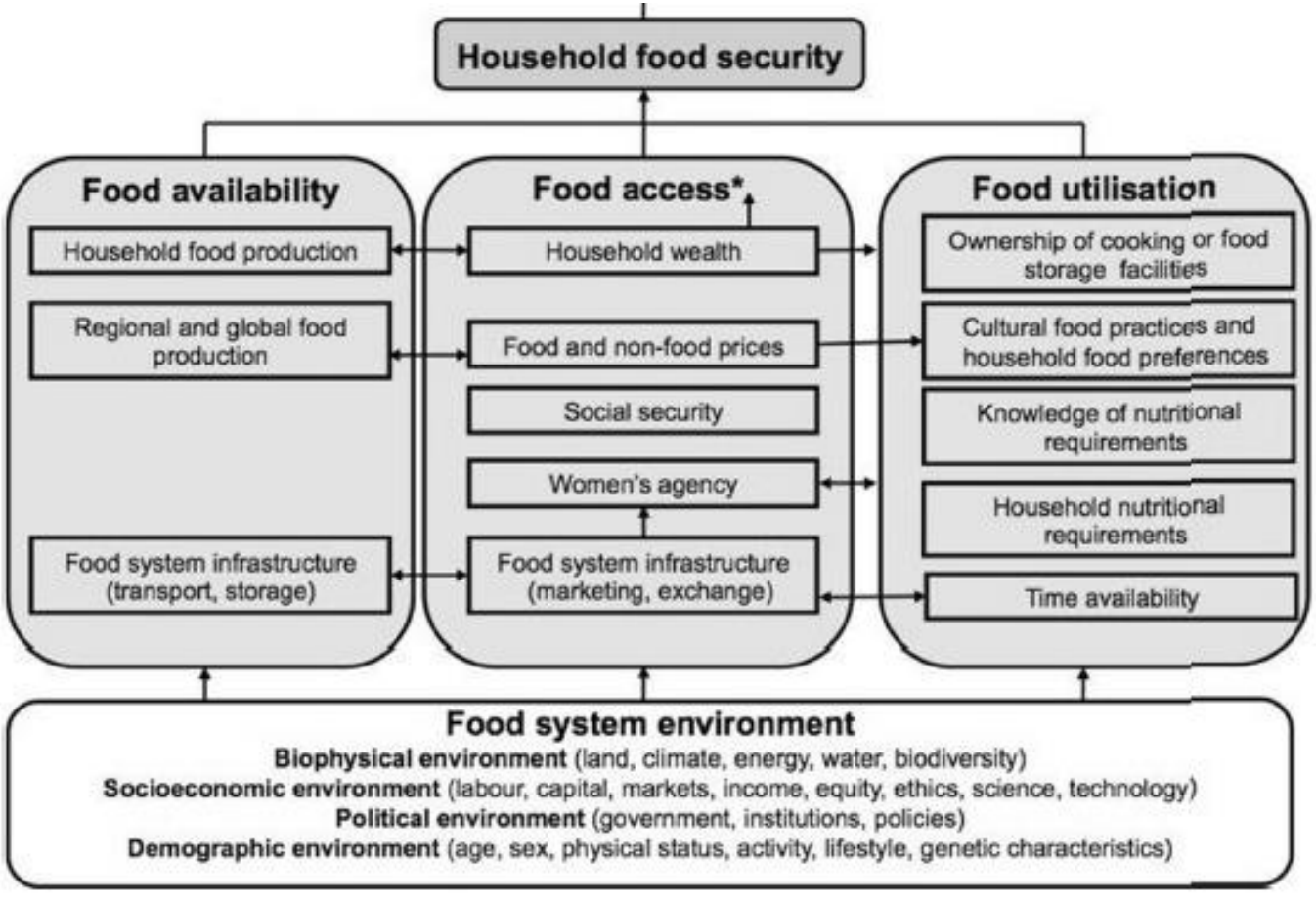
A More Detailed Framework for HHFS



Journal of Health, Population and Nutrition2015**33**:2
https://doi.org/10.1186/s41043-015-0022-0

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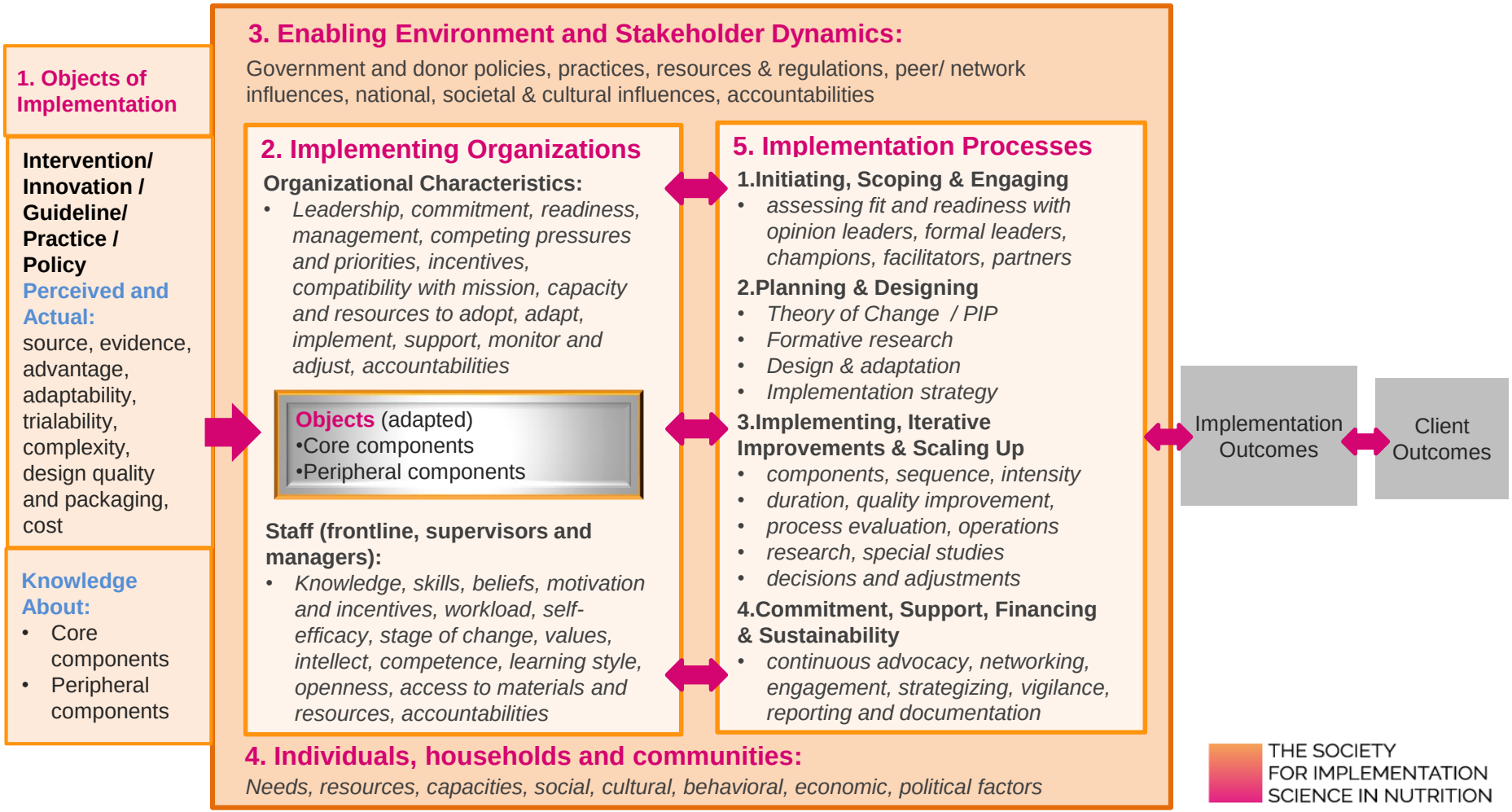
SISN's Five Domains of Implementation: More Detailed Frameworks



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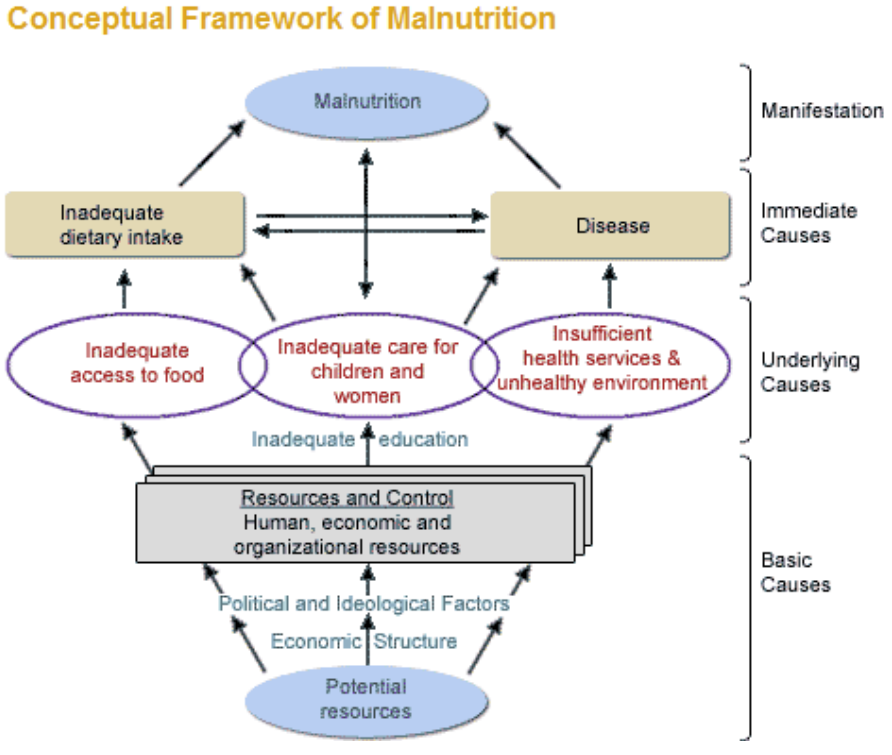
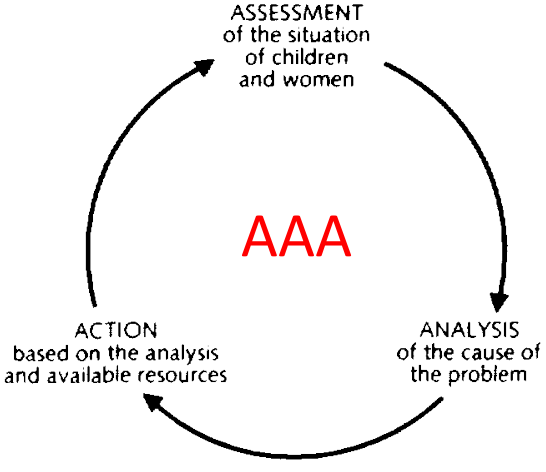
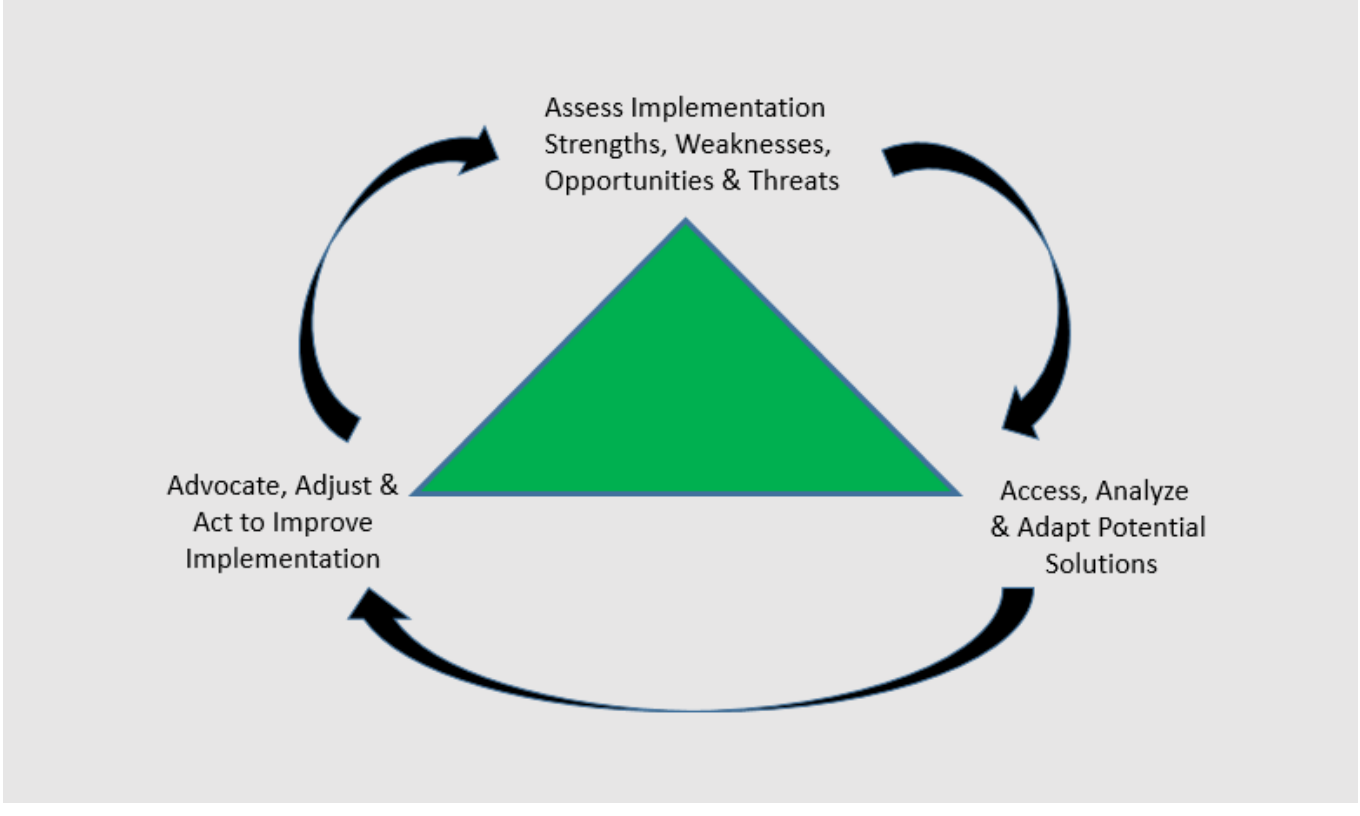




Implementation Science as a Triple A Cycle



SISN's Five Domains of Implementation in Detail

1. Objects of Implementation

Intervention/ Innovation / Guideline/ Practice / Policy

Perceived and Actual:
source, evidence, advantage, adaptability, trialability, complexity, design quality and packaging, cost

Knowledge About:
- Core components
- Peripheral components

3. Enabling Environment and Stakeholder Dynamics:

Government and donor policies, practices, resources & regulations, peer/ network influences, national, societal & cultural influences, accountabilities

2. Implementing Organizations

Organizational Characteristics:
- *Leadership, commitment, readiness, management, competing pressures and priorities, incentives, compatibility with mission, capacity and resources to adopt, adapt, implement, support, monitor and adjust, accountabilities*

Objects (adapted)
- Core components
- Peripheral components

Staff (frontline, supervisors and managers):
- *Knowledge, skills, beliefs, motivation and incentives, workload, self-efficacy, stage of change, values, intellect, competence, learning style, openness, access to materials and resources, accountabilities*

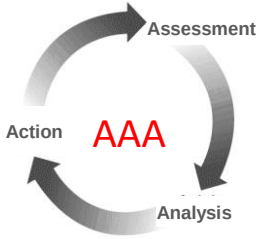
5. Implementation Processes

1.Initiating, Scoping & Engaging
- *assessing fit and readiness with opinion leaders, formal leaders, champions, facilitators, partners*

2.Planning & Designing
- *Theory of Change / PIP*
- *Formative research*
- *Design & adaptation*
- *Implementation strategy*

3.Implementing, Iterative Improvements & Scaling Up
- *components, sequence, intensity*
- *duration, quality improvement,*
- *process evaluation, operations*
- *research, special studies*
- *decisions and adjustments*

4.Commitment, Support, Financing & Sustainability
- *continuous advocacy, networking, engagement, strategizing, vigilance, reporting and documentation*



Implementation Outcomes ↔ Client Outcomes

4. Individuals, households and communities:

Needs, resources, capacities, social, cultural, behavioral, economic, political factors

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Adapted from Damschroeder et al.,*Implementation Science* 4:50, 2009

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Implementation Research (IR)

Implementation Research refers to "a variety of methods of assessment, inquiry and formal research whose purpose is to systematically assess, build on strengths and address potential weaknesses within and between each of the five domains that affect implementation."

(Adapted from WHO/TDR Implementation Research Toolkit, 2014)

A Classification Scheme of Implementation Research

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	4. Commitment, Support, Financing and Sustainability		
Diverse Objects of Implementation	**1. Initiating and Scoping**	**2. Planning and Design**	**3. Implementing, Iterative Improvement and Scaling Up**
Nutrition-specific interventions			
Nutrition-sensitive actions			
Operationalizing a national multisectoral nutrition agenda			
NGO projects (typically sub-national)			
Implementation Innovations			

A Classification Scheme of Implementation Research

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	4.Commitment, Support, Financing and Sustainability		
Diverse Objects of Implementation	**1.Initiating and Scoping**	**2. Planning and Design**	**3.Implementing, Iterative Improvement and Scaling Up**
Nutrition-specific interventions			
Nutrition-sensitive actions			
A national multisectoral nutrition agenda			
NGO projects (typically sub-national)			
Implementation innovations			

A Few Examples of IR in the Published Literature

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Diverse Objects of Implementation	**1. Initiation and Scoping**	**2.Planning and Design**	**3. Implementation, Iterative Improvement and Scaling Up**
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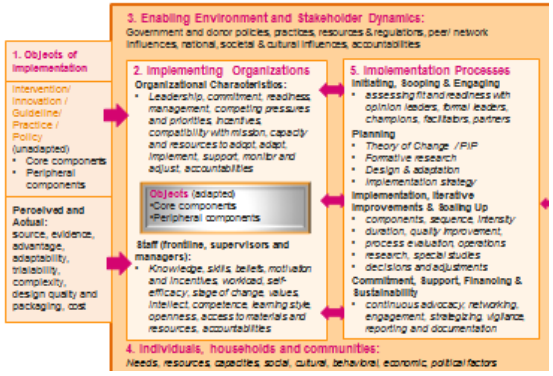

A Problem with this Construction:

Given the complexity of implementation, and…

…..the many, many weaknesses in the five domains, and….

…..the inability for implementers to wait for 'research findings'

- **It is NOT feasible to "systematically assess and address (ALL) potential weaknesses within and between each of the five domains during all phases of the implementation process"**

The Practical Solution: A Broad Definition of Implementation Science

"… an interdisciplinary body of theory, knowledge, frameworks, tools and approaches whose purpose is to strengthen implementation quality and impact."

It is NOT just new empirical research – it is "the science of implementation."

Implementation Science and Implementation Knowledge

- A great deal is already known about implementation, such that many of the most common mistakes could be prevented by **applying current knowledge rather than undertaking new investigations;**
- Much of this **current knowledge** has already been packaged into practical tools, frameworks and guidelines that **can be adapted and used in a variety of settings;**
- The **greatest "gap" lies in knowledge utilization**, rather than in generating new knowledge. This knowledge utilization gap exists in nutrition, health, education and most other sectors, and it exists in high income countries as well as low and middle income countries;
- **The most urgent need in nutrition implementation is to close this knowledge utilization gap by making these practical tools, frameworks and guidelines more readily accessible,** through various forms of capacity building, technical assistance, coaching, knowledge brokering and dissemination. This is a research agenda in itself.

Three Categories of Implementation Knowledge

CKE: Contextual Knowledge and Experience (often tacit)

The knowledge and experience of actors in a given country used in everyday decision when planning and implementing programs, including:

- *Stakeholder relations, histories and dynamics,*
- *Capacity strengths and weaknesses,*
- *What has or has not worked, where, when, how, why*
- *Formal and informal administrative procedures, etc.*

CIR: Contextual Implementation Research

Practical inquiries embedded in and connected to implementation in a given country, such as:

- *formative research,*
- *stakeholder analysis,*
- *opinion leader research,*
- *rapid assessments,*
- *operations research,*
- *special studies,*
- *process evaluation,*
- *costing studies,*
- *Delphi studies,*
- *various forms of quality improvement or quality assurance, etc.*

GKE: Global Knowledge and Experience

Published or unpublished findings, frameworks, tools and guidelines from:

- *implementation research in <u>other</u> countries*
- *implementation experience in <u>other</u> countries*

and

Experiential knowledge of practitioners from other countries

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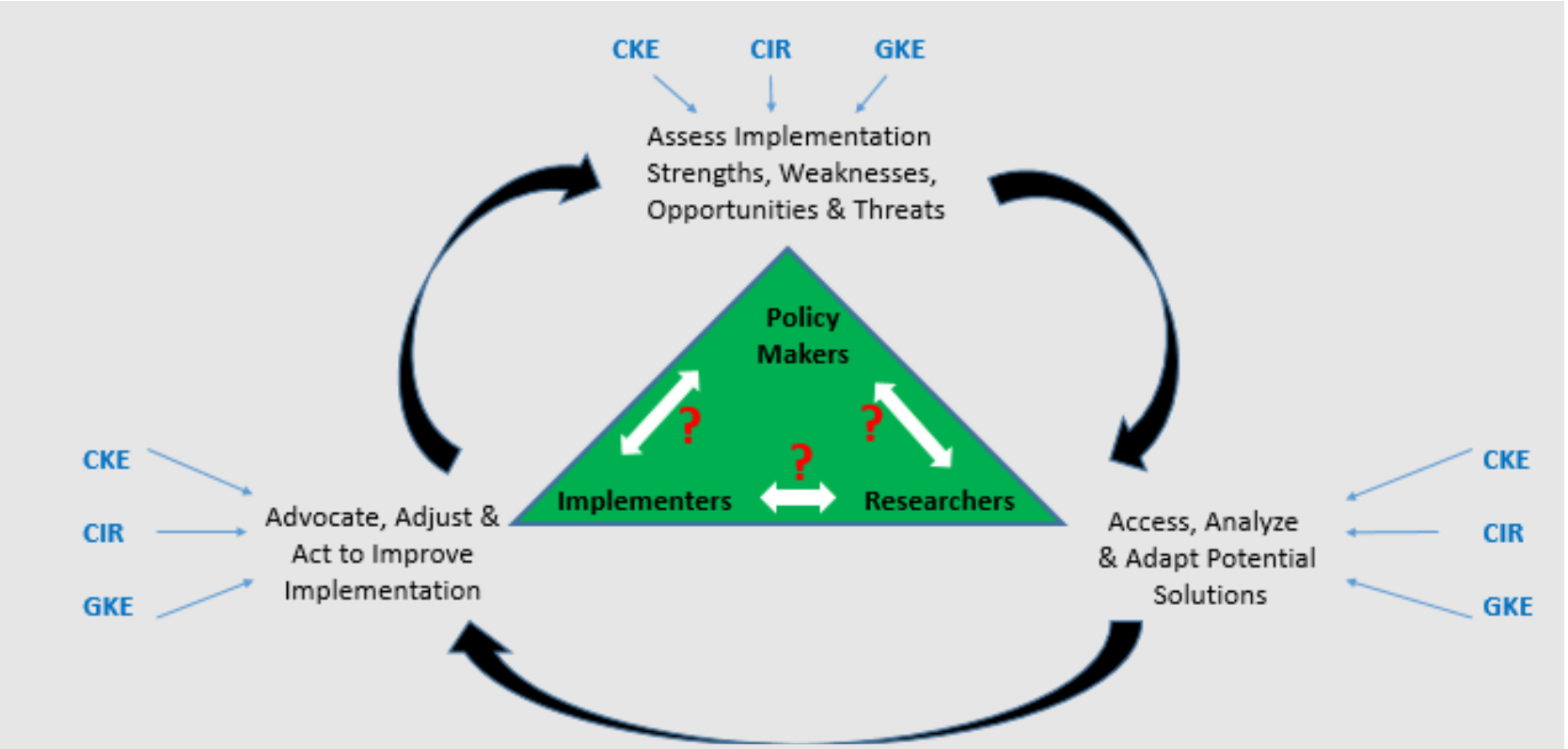
Recognizing Three Categories of Knowledge and Connecting Key Actors in the Triple A Cycle



CKE = contextual knowledge and experience
CIR = contextual implementation research
GKE = global knowledge and experience

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SISN's Integrative Framework for IS in Nutrition: Part 1: Using Existing Knowledge

Implementation Science:
Existing and Emerging Knowledge About Implementation

Frameworks, Tools, Guidelines

Capacity Building, Technical Assistance, Knowledge Brokering, Coaching

The Goal

Collaboratively Assess, Build on Strengths and Address Weaknesses in The Five Domains in a Timely Manner During All Phases of Planning and Implementation

The Five Domains That Affect Implementation

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SISN's Integrative Framework for IS in Nutrition: Part 2: Creating and Using New Knowledge

1. Contextual, Tacit and Experiential Knowledge (CKE)

3. Formal and Rigorously Evaluated Implementation Trials, Proofs of Concept & Evaluation of Innovative Implementation Practices (from the same or different settings) (GKE)

Implementation Science:
Existing and Emerging Knowledge About Implementation

2. Contextual Implementation Research (CIR)

Frameworks, Tools, Guidelines

Capacity Building, Technical Assistance, Knowledge Brokering, Coaching

The Goal

Collaboratively Assess, Build on Strengths and Address Weaknesses in The Five Domains in a Timely Manner During All Phases of Planning and Implementation

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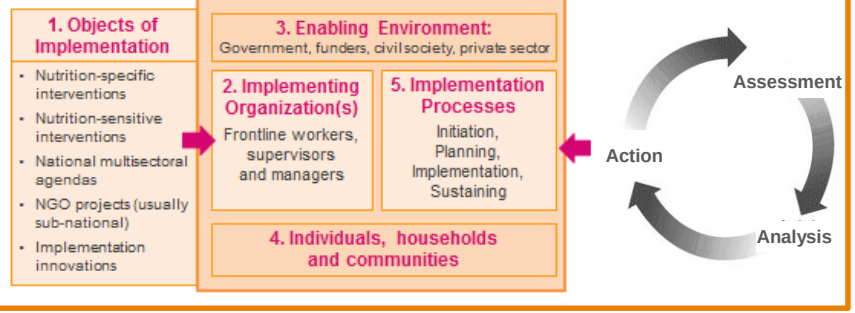

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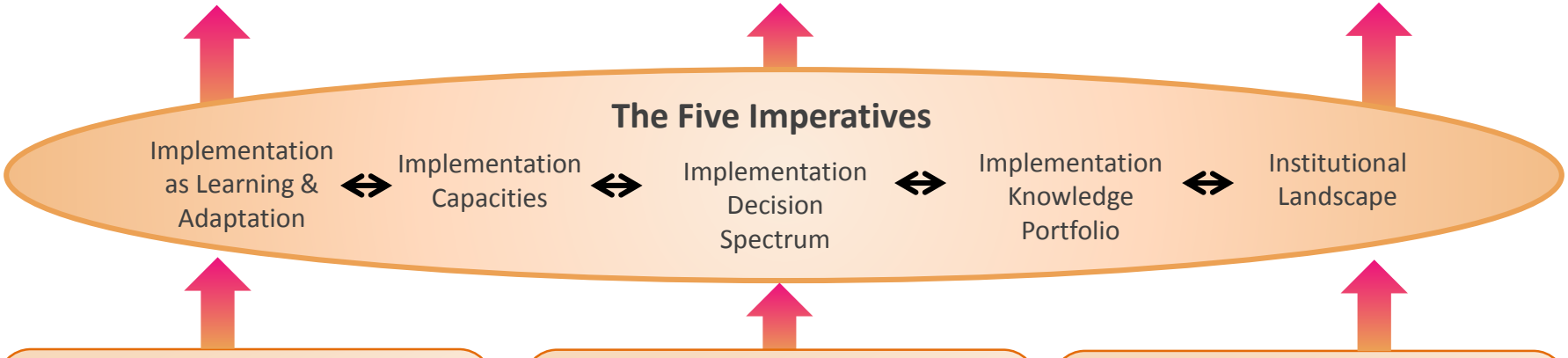
How This Differs from Conventional Practices and Business as Usual

This Framework Cautions Against:

- Focusing on generating new knowledge while neglecting the utilization of existing knowledge
- Privileging scientific knowledge while overlooking the value of contextual, experiential and tacit knowledge
- Emphasizing rigorous trials while neglecting the diverse methods for contextual inquiries
- Emphasizing research on certain objects of implementation (such as nutrition-specific interventions) and neglecting others (such as nutrition-sensitive actions, national multisectoral agendas and implementation innovations)
- Conducting research on field-level implementation processes while neglecting the problems and bottlenecks at the other three stages in the implementation cycle
- Strengthening capacity of implementing organizations and staff (through training) while neglecting critical bottlenecks in the other four domains.

SISN Vision: A world where actions to improve nutrition are designed and implemented with the best available scientific knowledge and practical experience.



Goal 1.
Advance the theory, methods and conduct of implementation science in nutrition

Goal 2.
Strengthen the capacities and support for implementation science

Goal 3.
Create and maintain an innovative and effective implementation science knowledge management system

Goal 4. Ensure that SISN's members are inclusive of all stakeholder categories required for its mission

Goal 5. Ensure that SISN is well-governed, well-managed, appropriately resourced, accountable and sustainable

Current SISN Priorities and Activities

1.Disseminate guidance on IS/IR principles and research methods	Webinars, journal articles
2.Identify and disseminate case studies of implementation science in nutrition (via webinars, briefs, publications, curricula, workshops…)	Ongoing; collab welcome
3.Develop IS/IR training materials and curricula	Planned for 2018/19; collab welcome
4. Funded opportunities for short- and medium-term implementation science capacity development	not yet; collab welcome

Key Messages

1. The high level commitment to nutrition now creates an urgent need for large-scale implementation and impact

2. Business-as-usual implementation and business-as-usual research is not sufficient: Both must change. Good examples already exist.

3. The “Integrative Framework” presented here provides a way to improve the quality of implementation in a practical and timely fashion, by systematizing, integrating and utilizing diverse forms of knowledge at all stages of the implementation process

4. SISN provides a mechanism for implementers, researchers and other parties to collaborate in this effort

SISN

- Check out our website: www.implementnutrition.org
- E-mail us at: implementnutrition@gmail.com
- Follow us: @implementnutri

The Society for Implementation Science in Nutrition

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