RESEARCH PROGRAM ON
Agriculture for Nutrition and Health

LED BY IFPRI

Using Theories of Change to Manage and Monitor Progress towards Outcomes

Updated August 2015

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Helpful comments were received from John Mayne, John McDermott, Amanda Wyatt, Keith Child and participants in a meeting at the Department of Foreign Affairs, Trade and Development (DFATD) in Ottawa. Comments and questions are welcome at: n.johnson@cgiar.org.

Overview

The CGIAR research programs (CRPs) are intended to facilitate the design and implementation of larger, more integrated research programs that can deliver significant outputs with the potential to contribute to development outcomes and impacts at scale. Since 2013, the CRP on Agriculture for Nutrition and Health (A4NH) has been working on defining the intermediate development outcomes (IDOs) and related indicators to which we expect to contribute and developing impact pathways and theories of change (ToCs) for major program areas and outputs. ToCs identify the sequences of immediate outcomes between outputs and development outcomes and the key assumptions that underlying causal linkages between outcomes (See, for example, Figure 1). To date, we have developed ToCs for major program areas. They are mainly used for internal planning however they have many other potential uses that we will be exploring in future work.[1]

Progress to date

The current A4NH results framework (Figure 2) describes the main components of the program (the Flagships) and the main development outcomes (IDOs) and impacts (SLOs) to which the flagship activities and outputs are expected to contribute. The results frameworks show the generic types of impact pathways, which are defined by the types of actors whose capacity and behavior is expected to change as a result of the research.

The results framework[2] is a useful way to describe the program, its main components, and their contributions to development outcomes, however the level of aggregation makes it difficult to see the logic or assess the plausibility of the expected causal pathway(s) between outputs and outcomes. To fully describe the pathways from outputs to outcomes at a level of detail that enables the identification of the key assumptions that underlie the anticipated linkages—in other words, to develop a theory of change—we need to work at the level of specific outputs and types of pathway.

The decision on which ToCs to develop in detail followed logically from our work on identifying IDO indicators and targets. These indicators and targets were defined and estimated for the more advanced areas of the research program, where the key outputs of the research had been identified, if not necessarily fully developed. These areas were Biofortification, the integrated programs clusters of the Integrated Programs and Policies flagship and the food safety clusters of the Agriculture-Associated Disease flagship (Table 1).

For completed ToCs, we have also examined the evidence behind the assumptions. As an example,

[1] Mayne, J. and Johnson, N. Using Theories of Change in the CGIAR Research Program on Agriculture for Nutrition and Health. *Evaluation* (forthcoming).

[2] In preparation for Phase II, we have revised the results framework in line with the new CGIAR Strategy and Results Framework (SRF) and developed similar but slightly more detailed impact pathways for each of the proposed flagships in the A4NH pre-proposal. While still at a high level of aggregation, the flagship-level impact pathways show how flagship outputs are expected to contribute to sub-IDO- and IDO-level outcomes through a series of "immediate" or "research" outcomes among actors in different types of impact pathways. The flagship-level impact pathways are nested within the A4NH results, each one explaining in more detail a subset of the A4NH-level outcomes.

Table 2 provides a summary of the evidence and likelihood of outcomes for the ToC on farm-level technologies for aflatoxin mitigation. A similar assessment has been done for biofortification and for the other food safety ToC and is in progress for others. This information can inform the research and partnership agenda by identifying areas where more research is needed to fill evidence gaps or where additional actions by partners may be needed to ensure that an assumption holds and increase the chances that an outcome occurs. In a research project, it is to be expected that some areas will have weak or no evidence initially. The important thing is that as the program progresses, the evidence becomes stronger and the ToC more plausible.

Next Steps

The ToC work started in Phase I will continue, with new ToCs developed and current ToCs regularly used and updated. To support the usefulness of ToCs for management decision in Flagships and at the CRP level, we are working to linking them to the CRP monitoring system.

For research in the "delivery-at scale" stage—for example, the HarvestPlus program in A4NH—the ToC provides the basis for real-time monitoring of progress along the pathway.[3] At the "proof of concept" stage, outputs are still being developed and research focuses on developing and testing the viability (technical, economic, social, environmental) of promising prototypes. A ToC at this stage may be less complete with some outcomes missing or poorly defined. As a research program progresses, ToCs should become better defined and better evidenced. This progress is not reflected in movement "along" the impact pathway *per se* but rather in an overall improvement in the robustness or plausibility of the ToC. Figure 5 presents an example of how a ToC might improve over time.

Current ToCs will be regularly updated and would be expected to become more robust as new evidence and experience become available. In 2014, a database was developed to track outputs produced in A4NH. The unit of analysis is the project, given that A4NH receives the majority of its funding from bilateral projects[4] which are developed by researchers, proposed to donors by CGIAR centers or other partner organizations, and mapped to and often co-funded by A4NH. Project are currently organized by Flagship and Cluster, however we will define additional fields to show how the project outputs and outcomes contribute to the strengthening the ToCs. At the same time, the ToCs can be used to identify key research questions and evidence gaps around which researchers and managers should develop proposal.

While the majority of the A4NH portfolio is covered by a ToC, there are still important areas that are not. One area where further work is needed to develop detailed ToCs is in the area of research of cross-sectoral policy processes. This area is expected to grow from a cluster in Phase I to a Flagship in Phase II. A conceptual framework (Gillespie et al 2013) and generic ToC (Figure 3) will provide the basis on which more detailed, country-level ToCs, can be developed.

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[3] In their Monitoring Learning and Action (MLA) program HarvestPlus country teams are tracking seed delivery and farm households reached at national level in target countries and linking that information, along with data from targeted surveys on yields and crop utilization, to ex ante models in order to refine estimates of impact on IDO- and even SLO-level outcomes.

[4] There are currently 79 open projects in the A4NH project data base however this underestimates the total number since HarvestPlus appears as a single project. We are working to better harmonize how we define projects, based on information provided by CGIAR centers.

There are some areas of A4NH where we expect to contribute to IDOs through supporting and adding value to the work of other CRPs. Some examples include:

- The current flagship on Value Chains for Enhanced Nutrition is working to integrate nutrition into the value chain research across CRPs and in the systems CRPs.

- The flagship on Biofortification is working to mainstream breeding for nutrition into the breeding programs of CGIAR centers and partners.

- The A4NH Strategic Gender Unit is doing capacity strengthening and targeted research on gender-nutrition linkages in order to help other CRPs with nutrition IDOs to achieve their objectives.

In each of these cases, this work should be guided by a ToC that clarifies what the objectives and targets are, how they will be achieved, and how progress can be monitored. A ToC for the gender work has been developed (see the revised A4NH Gender Strategy). Once the Phase II portfolio is finalized, additional ToCs will be developed.

Table 1. Summary of theories of change in A4NH, by flagship[5]

2015-16 budget (USD millions)	Summary of indicators and targets from Extension Proposal (Table 1)[6]	ToC Work to Date (2015)
Flagship: Value Chains for Enhanced Nutrition		
14	The outcome will be **women's dietary diversity**[7] however no targets have been set. It is likely that contributions will largely be through other CRPs	Initial exploratory work in this area resulted in a conceptual framework paper rather than a ToC, as appropriate given the stage of research.
Flagship: Biofortification		
90	Through its delivery phase, HarvestPlus expects to reach "25 million micronutrient deficient people by 2018 in 8 target countries in Africa and Asia." Targets for **dietary micronutrient intake** of target beneficiaries have been set, but will be reached post-2018.	A generic impact pathway for delivery of biofortified varieties in target countries was developed, and detailed ToCs were developed as examples for three crop-country combinations, including assessments of the strength of the evidence. Building on this work, the HarvestPlus Monitoring, Learning and Action (MLA) teams in each target country are adapting/developing ToC on which to base their work. To date, four additional ToCs have been developed: zinc rice in Bangladesh, zinc wheat and iron pearl millet in India, and iron beans in DRC.
Flagship: Agriculture-Associated Diseases		
25	Outcome indicator is **exposure to pathogen/ hazard**. Targets have only been set for the food safety work. For perishables: Livestock and Fish and A4NH estimate that exposure to priority food-borne pathogens in animal source food value chains will be reduced by 5% by 2020, benefitting 8 million people. For aflatoxins: exposure targets are still not defined. Targets related to technology reach are: (1) Biocontrol technologies (Aflasafe) are targeted for delivery at scale in nine countries in Africa by 2019 and (2) a 10% increase in consumption, particularly by women and children, of low-aflatoxin groundnut in two countries in Asia and 10 countries in Africa (from CRP on Grain Legumes).	Two ToCs and assessments of the strength of the evidence and likelihood of outcomes have been developed, one for farm-level technologies and practices for mitigating aflatoxins and one for a training, certification and branding scheme for informal traders in dairy and meat value chains.
Flagship: Integrated Programs and Policies		
30.8	Improving the performance of integrated programs was expected to increase **women's mean dietary diversity**[6] by 1 food group and **prevalence of children's minimum dietary diversity** by 10%. Number of people reached TBD. Several targets were also set for policy-related outcomes, for example influencing other research organizations, national governments, and research organizations.	A ToC is being developed for how the body of evidence from impact evaluation of integrated programs is expected to increase the effectiveness of program implementers (Figure 3). It is based on a scoping study commissioned by A4NH on uptake and use of research and evaluation results by international NGOs. A draft ToC was developed for policy-related outcomes (Figure 4). The conceptual and empirical frameworks for creating and sustaining an enabling environment is described in Gillespie et al. (2013) and Gillespie, Menon, and Kennedy (2015).

[5] Flagships in this table are the current flagships in A4NH (2012-2016).

[6] See the Annex on Table of Target Beneficiaries and Countries in the A4NH pre-proposal submission (August 2015) for more progress on targets.

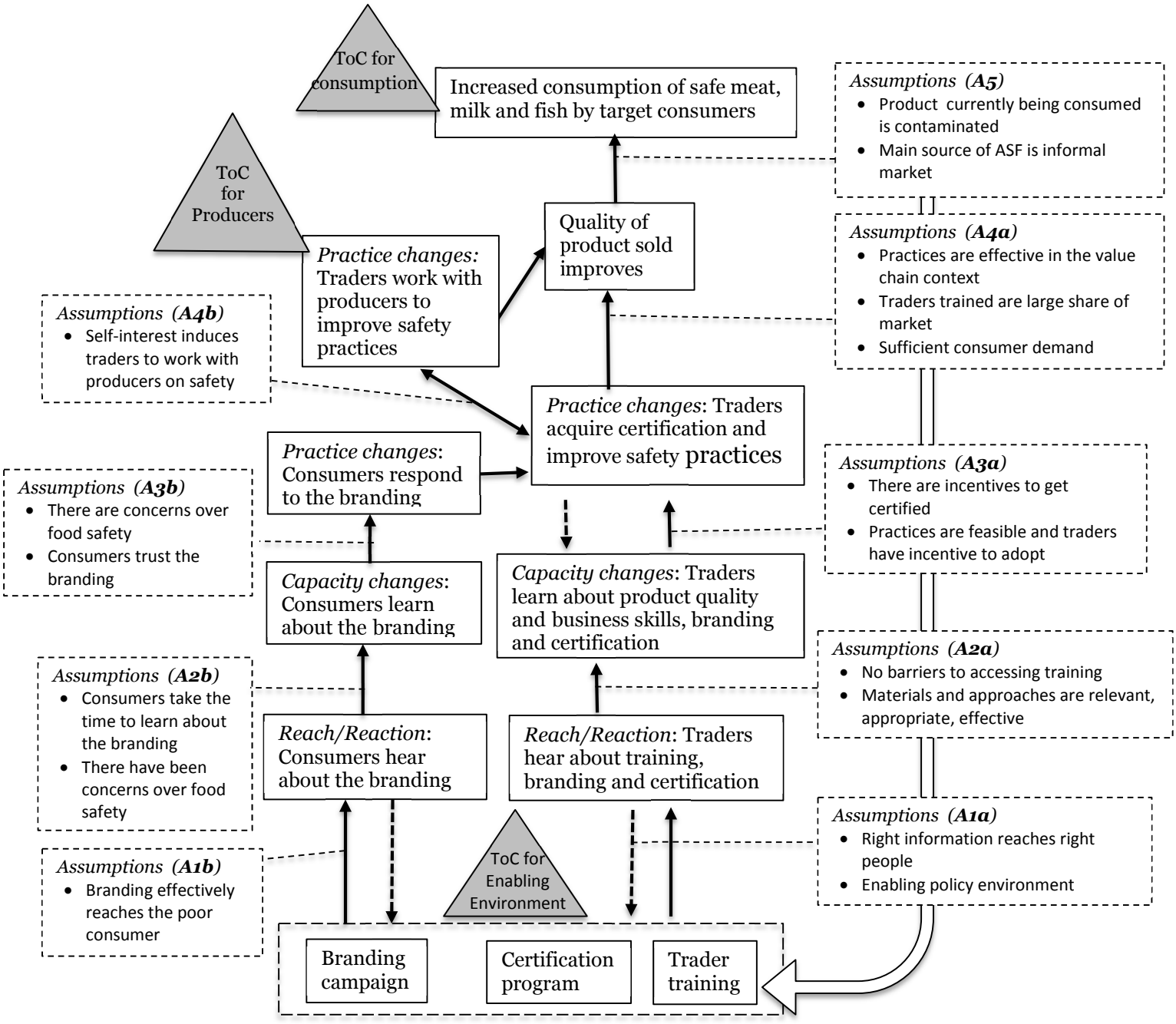
[7] Since the time this was written, a validated indictor for women's minimum dietary diversity has been identified so we will use this in the future.

Table 2. Summary of evidence on likelihood of outcomes and strength of evidence for assumptions from the theories of change for farm-level technologies and practices to mitigate aflatoxins

Outcomes and *likelihood of occurrence*	**Assumptions**	**Strength of evidence**
Farmers aware and convinced of the benefits of aflatoxin-reducing technologies and practices ***Likelihood: Low to medium***	Right person(s) reached by information Information is appropriate and useful	Weak to medium Medium
Farmers adopt technologies and practices ***Likelihood: low to medium***	Technologies and practices accessible to decisionmakers in farm households Technologies and practices deliver expected benefits in farm households	Weak to Medium Medium
Intermediaries buy and use grain produced by smallholders using risk-mitigating practices ***Likelihood: low to medium***	Grain produced with risk-mitigating practices meets market needs/standards (including cost) Grain not meeting standards is used appropriately	Weak to medium Weak
Consumers are aware and convinced of benefits of consuming aflatoxin-safe foods ***Likelihood: medium***	Right person(s) reached by information Information is appropriate and useful	Medium Medium
Consumers consume aflatoxin-safe products ***Likelihood: medium***	Aflatoxin-safe foods available to decisionmaker(s) within the household	Medium
Aflatoxin exposure is reduced ***Likelihood: medium-high***	Consumers currently consuming contaminated product No other sources of contamination in the diet	Strong Medium-Strong

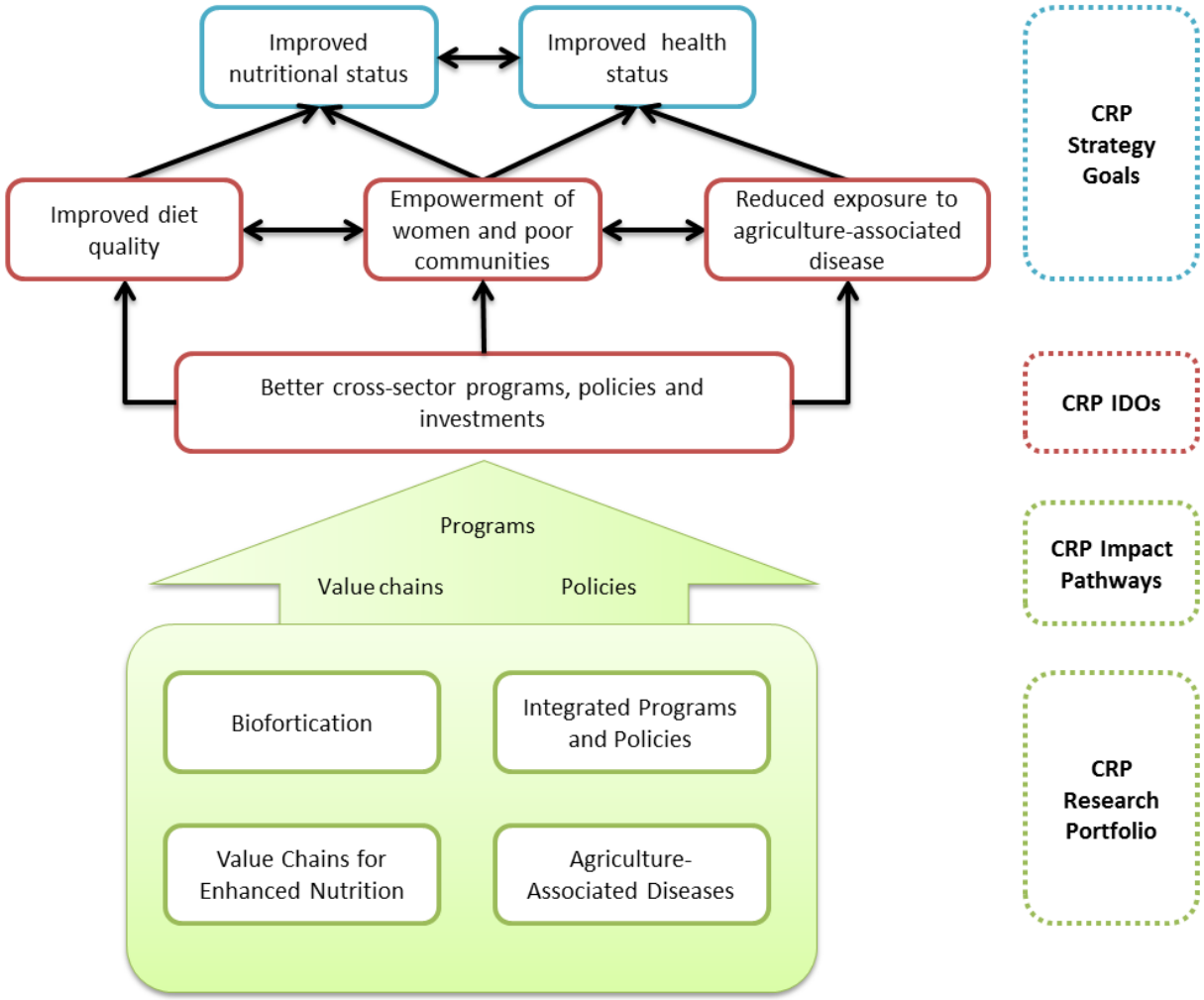
Source: Adapted from Johnson, Atherstone, and Grace, 2015.

Figure 1. Theory of change for an institutional innovation to improve the safety and quality of meat, milk, and fish in informal markets



Source: [Johnson et al., 2015](#).

Figure 2. A4NH Results Framework (2012-2016)



Source: Adapted from the A4NH Extension Proposal (2015-2016)

Figure 3. Theory of change for Cross-Sectoral Policy Processes cluster of the flagship on Integrated Programs and Policies (updated based on the revised CGIAR SRF 2016-2022)

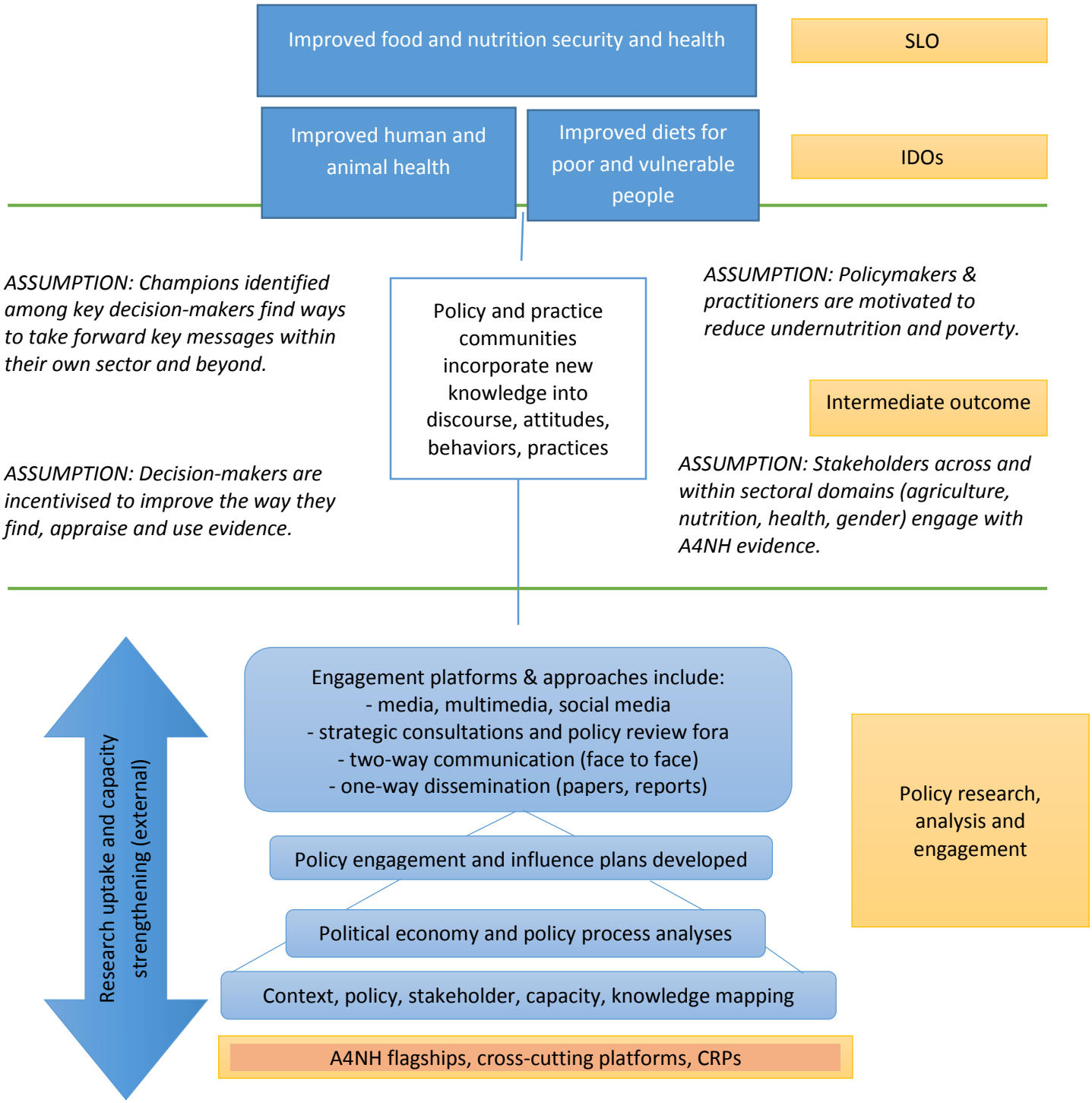


Figure 4. Theory of change for flagship on Integrated Programs to Improve Nutrition (updated based on the revised CGIAR SRF 2016-2022)

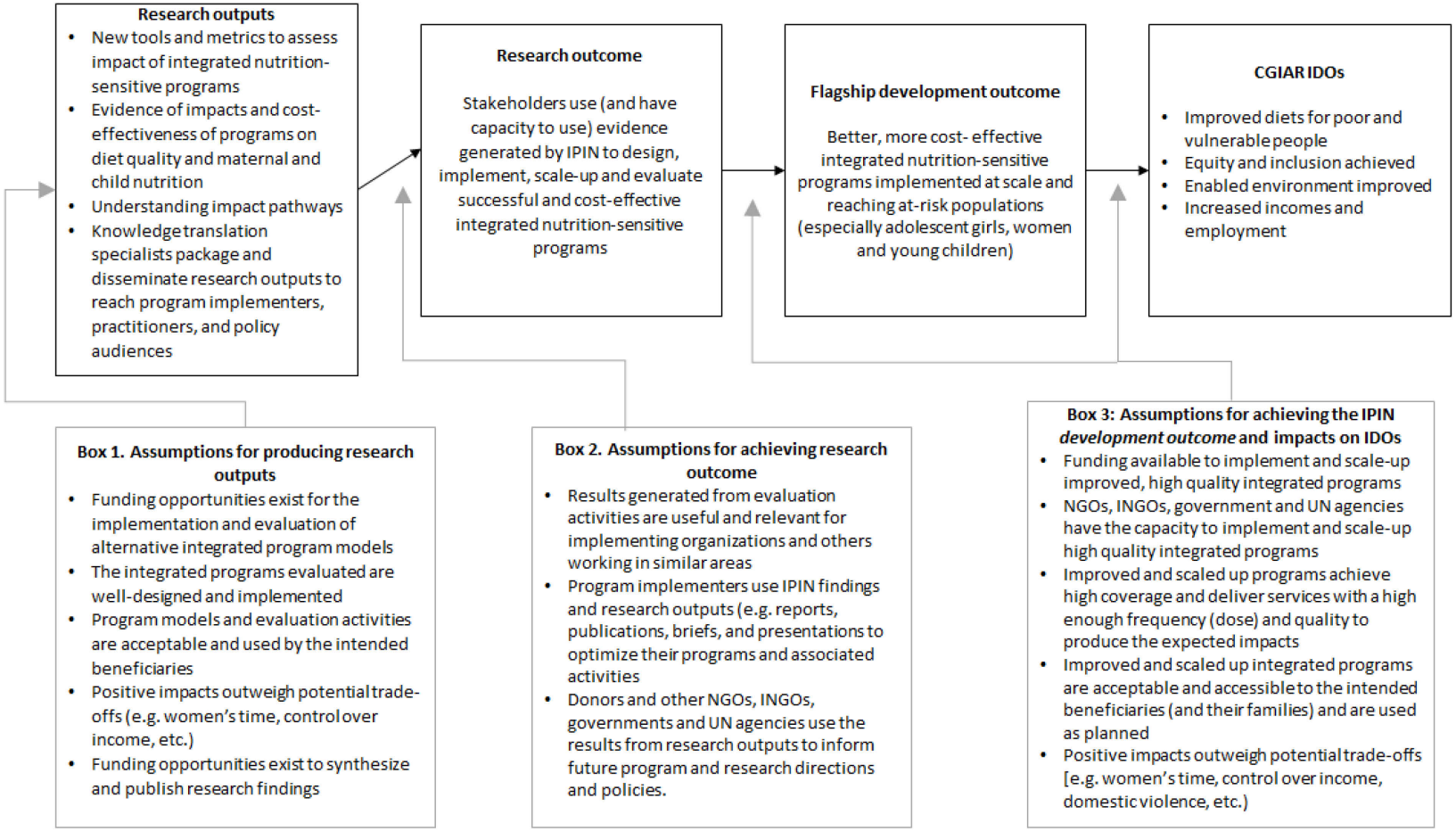
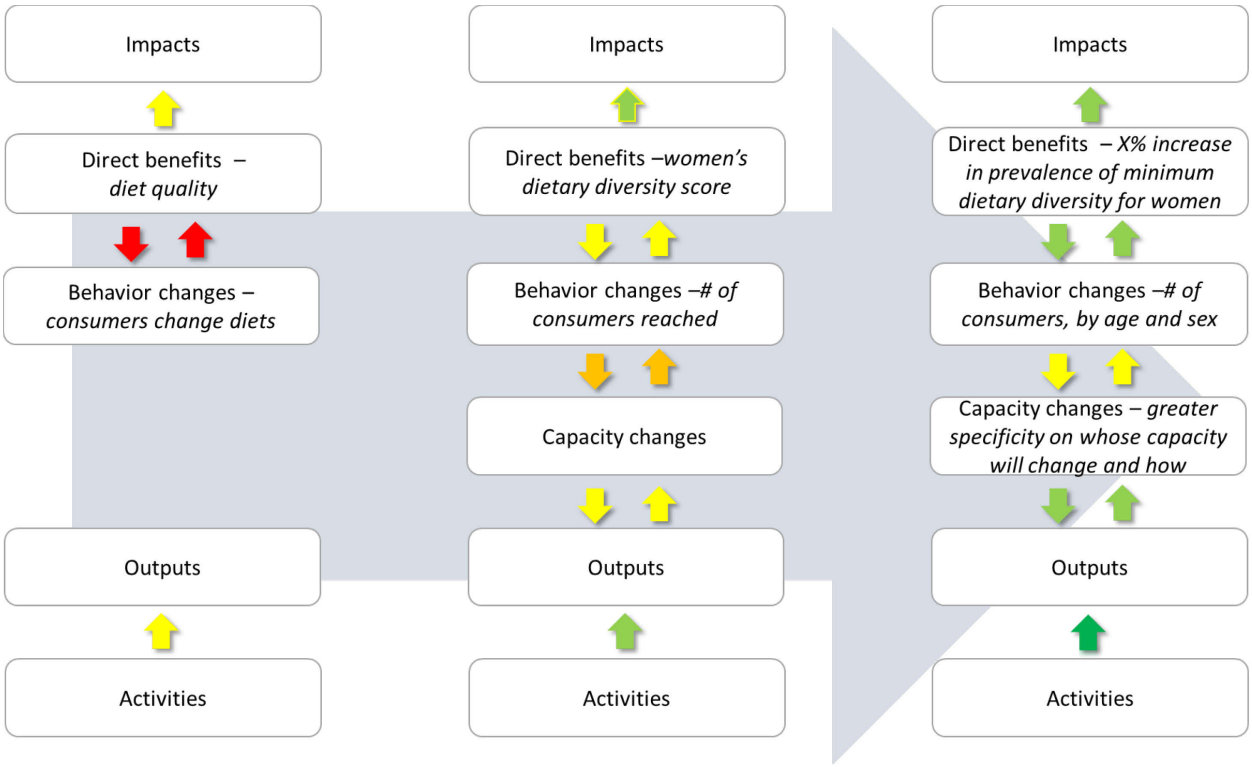


Figure 5. Example of how a theory of change is strengthened as research progresses



Note: Color represents likelihood of link occurring and is represented by a traffic light system: green = high (status of underlying evidence is good); yellow = medium (some evidence available but it is incomplete or not very convincing) and red=low (evidence is absent or weak).