Integrating Agriculture and Nutrition Actions to Improve Maternal and Child Nutrition: Research on Program Impact Pathways

Report of an LCIRAH | N-CRSP workshop

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There is a need to establish solid, empirical knowledge of the effects of integrated programs targeting agriculture, nutrition and health (ANH), which are often complex, multi-sector interventions. In particular, there is a need to develop metrics and measures that will allow researchers to understand and rigorously research the barriers, facilitators and drivers of impact, to be able to say *why and how* a program succeeded or failed, as well as draw more generalizable lessons about the combination of inputs and services across multiple sectors that together achieve value-added gains for nutrition. In other words, innovative evaluation designs and metrics are needed to consider not only the overall impact of ANH programs, but also to assess theorized programme impact pathways, and the parameters of effective implementation: the process research, or delivery science elements.

The meeting built on a May 2011 workshop hosted by the Leverhulme Centre for Integrative Research on Agriculture and Health (LCIRAH) and the International Food Policy Research Institute (IFPRI)'s 2020 Vision Initiative, on multi-sectoral metrics. This workshop, co-facilitated by LCIRAH and USAID's Nutrition Collaborative Research Support Programme (N-CRSP) led by Tufts University's Friedman School of Nutrition, focused on the further development of ANH metrics, using a selected set of projects (summarized in the box on the next page) as material for a structured, case-study exercise.

Generation of Key Questions

The workshop generated several key questions for researchers assessing complex interventions in field settings:

- Participants debated what constitutes 'nutrition-sensitive' development, and whether there is a common understanding of the elements of agriculture, health and nutrition which make up many of these programs.
- What are the actual linkages between agriculture and nutrition? What are the assumptions we are making about impact pathways? Can we quantify the conversion factors linking each step in the impact pathways?
- What goals are we trying to achieve with the interventions: Local improvements; progress to catch-up to a national mean; or the reaching of international standards/targets for outcomes and processes…?
- What evidence do we need, at what level, rigor, and scale, to recognize causal or highly plausible effects of complex interventions? What are the key metrics, and what essential data are needed by the different research communities to measure them? What should be measured in field studies, to what sensitivity?
- What is a minimum package for agri-health for nutrition, and what are its elements? How locally contextual are such packages? Where is integration essential, for optimizing different outcomes?

Challenges

Several key challenges were identified by workshop participants, including logistical, methodological, and capacity constraints, and it was noted that there is a paucity of literature on these topics. Challenges include:

- Different implementation processes require different evaluation designs, which allow for different levels of attribution of causality. All projects presented at the workshop are encountering conflict between implementation and evaluation. This raises particular challenges regarding causality and theories of change, thus honest and open interaction between implementers and evaluators is critical, either to modify implementation to fit a design, or to be creative with a design to fit implementation.
- Simple, linear program impact pathways have limitations in terms of what can be visualized and assessed.
- Showing cost-effectiveness, particularly for single elements of ANH projects.

Case studies:

Realigning Agriculture to Improve Nutrition (RAIN) project, Zambia

- 5-year study; implementation by Concern Worldwide, evaluation by IFPRI; 3,500 households
- Home gardening and animal production interventions, with nutrition and health BCC
- Cluster-randomized impact and process evaluation. Arms are agriculture+health; ag-only; comparison
- Repeated cross-sectional surveys for impact; assessment of program delivery and uptake through assessment of Program Impact Pathways
- Impacts: Stunting; food, health and care

Home Grown School Feeding (HGSF), Mali

- Government-led program, evaluation of a national program, 1,520 schools (120,000 children)
- Opportunity to enhance program performance through trainings covering procurement, management, and market information, plus nutrition BCC.
- RCT- expansion to 60 new areas was the opportunity for randomization, in 2 stages, at district and school levels. Arms are home grown food or (inter)nationally procured, plus control.
- Theory of change through agriculture, nutrition and education pathways
- Impacts: Education, health and nutrition, and effects on local farmers

Multiple integrated agri-health programs, Nepal

- Focused on several multisector programmes that combine productivity enhancement, diet diversification and nutrition activities (including USAID-funded Suaahara and Feed the Future interventions). Implemented by NGOs but designed to coordinate with government; 'going to scale' across large parts of the country
- Composite study to capture rich dynamics of change: surveillance system to track change; impact evaluation; and assessment of theory of change
- Observational cohort design; looking at patterns over time and whether they vary plausibly with different program exposure in different areas
- Impacts: nutrition, diet, food security, markets, health services, program exposure and uptake

Community Connector Program (CCP), Uganda

- Layered food security and livelihoods program in 18 districts with government buy-in; 81,000 households
- Agriculture and nutrition interventions, supplemented by Community Connectors working for coordination between sectors
- Impact evaluation- repeated cohort panel; birth cohort; process evaluation- program impact pathway
- Overlapping studies to show causality, plausibility, probability
- Impacts: Stunting, anemia, biochemical markers of nutrition, dietary improvements, gender inequities, household income, engagement in markets, pre-and post-natal infant growth.

- Measuring long-term impacts, spillover effects, and unintended consequences, particularly of large-scale ANH interventions.
- Creating valid metrics for assessing behavioral concepts such as inter-sectoral coordination and commitment, or why people innovate.

Opportunities

There are many opportunities generated by the current high level of interest in this topic globally, providing resources and space to drive this work forwards. Of particular note from the workshop:

- Several key publications, including the review by Masset and colleagues, and a forthcoming research mapping exercise by LCIRAH, are identifying opportunities to link studies, share metrics and identify gaps for research.
- Mixed-methods, quantitative and qualitative work can be used for answering both the *what,* and the *how* questions relating to plausibility and causality. There is also need for policy-focused analysis.
- Context will and should influence which intervention packages are needed where- this heterogeneity can be a tool, rather than an obstacle, with variations in contexts exploited for study designs.
- There is opportunity to improve on the sometimes vague hypotheses for ANH programs, and to identify some *a-priori* theories of impact that are biologically plausible, to guide program design.
- We can learn from other sectors who have already attempted 'integration', both in terms of implementation and measurement.

Way forward

Workshop participants identified several steps going forward:

1. Networking researchers in this area to facilitate sharing and developing evaluation methods and metrics, leading to engagement beyond the academic research community to build consensus on best practice.
2. One or more collaborative publications that share common thinking on the theories of change around agricultural impacts on nutrition and issues inherent in designing complex evaluations of relevant programs, and frame a coherent research strategy going forward.
3. The potential for collaborative work on the four case studies presented here, and other similar projects, helping each other on design, and eventually having the possibility of a synergy from the results that can collectively answer many of today's pressing questions about integrated program design, implementation best practice, and optimal measures of success.

Workshop participants are currently working towards these goals, and hope to engage with the broader research community through dialogue, collaboration, and knowledge-sharing to create critical mass of agriculture-nutrition-health research for policy and practice.

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