



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

Papers downloaded from AgEcon Search may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

CELEBRATING AGRICULTURE FOR DEVELOPMENT

Outcomes, impacts and the way ahead

The Crawford Fund 2022 ANNUAL CONFERENCE

Parliament House
Canberra ACT Australia
and online

15–16 August 2022



Editor Ann Milligan

A DIVERSITY OF BENEFITS

Nutrition-sensitive food systems: integrating nutrition programming into agriculture development

Jessica E. Raneri

Senior Nutrition Sensitive Agriculture Adviser to ACIAR and DFAT



Today I am going to talk to you about nutrition-sensitive food systems. Global malnutrition and food insecurity rates are still high, as we heard last night in the Sir John Crawford Memorial Address, and again today. There are now 2.3 billion people who experience moderate and severe food insecurity. Nearly a quarter of children under five are stunted and 3.1 billion people cannot afford a healthy diet. There is a huge financial cost associated with malnutrition. It is estimated at 3.5 trillion USD per year and that does not include the cost of over-nutrition. Clearly, our food system is failing.

There are different entry points to improve nutrition across the food system (Figure 1).

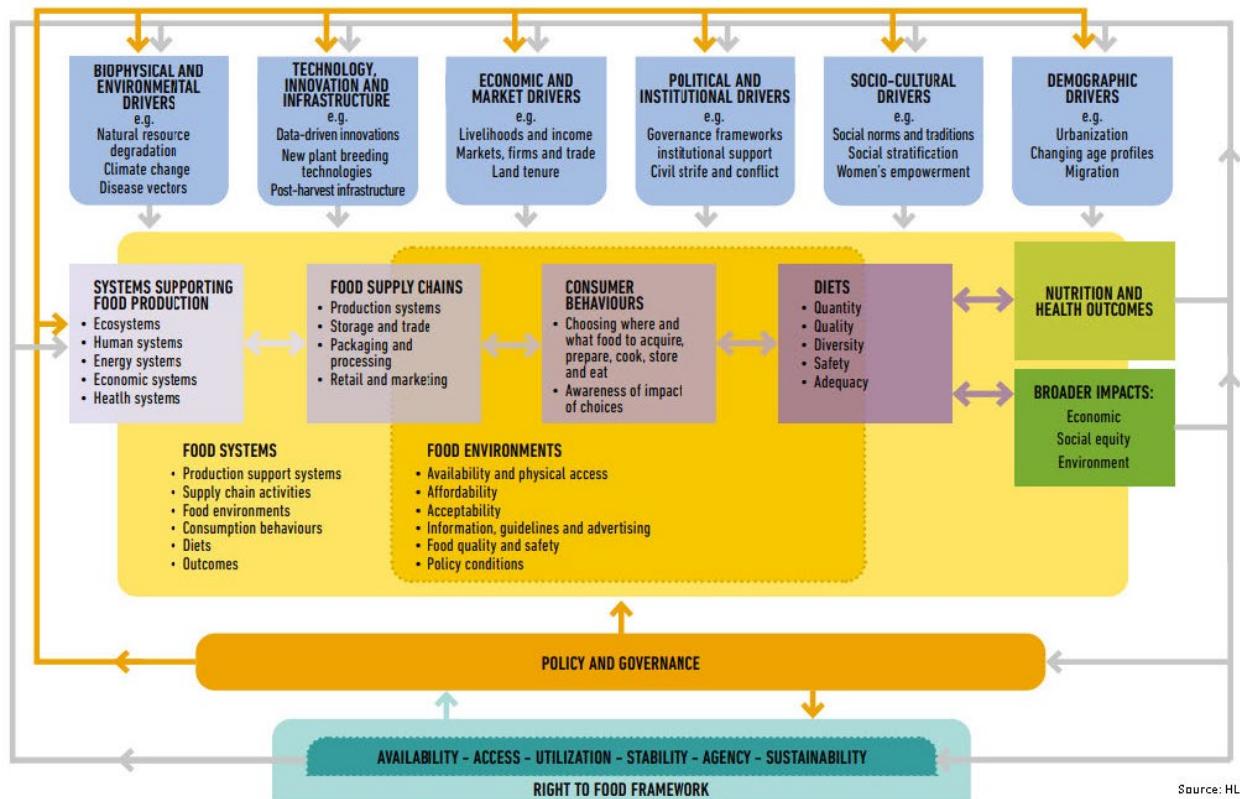


Figure 1. Various approaches or entry points to improving people's nutrition. *Source: HLPE 2020.*

Traditionally, agriculture projects have taken a supply-oriented approach, assuming that the consumers – the people who actually eat the food – will simply follow suit. Alternatively, taking a food-system approach means putting people at the centre of what we do, and understanding how consumer demand and consumers' capabilities and preferences can be leveraged to help improve nutrition outputs and outcomes across the food system.

We know that agriculture is the most direct way to improve nutrition of the rural poor, and it can do so through multiple pathways, including as a source of food, of income and of women's empowerment (Figure 2). The most direct pathway is by bolstering the availability of – and accessibility to – sufficient nutritious and safe food. Nutrition-sensitive approaches address the multiple underlying causes of malnutrition, including food insecurity (Figure 3), which is where agriculture is very important.

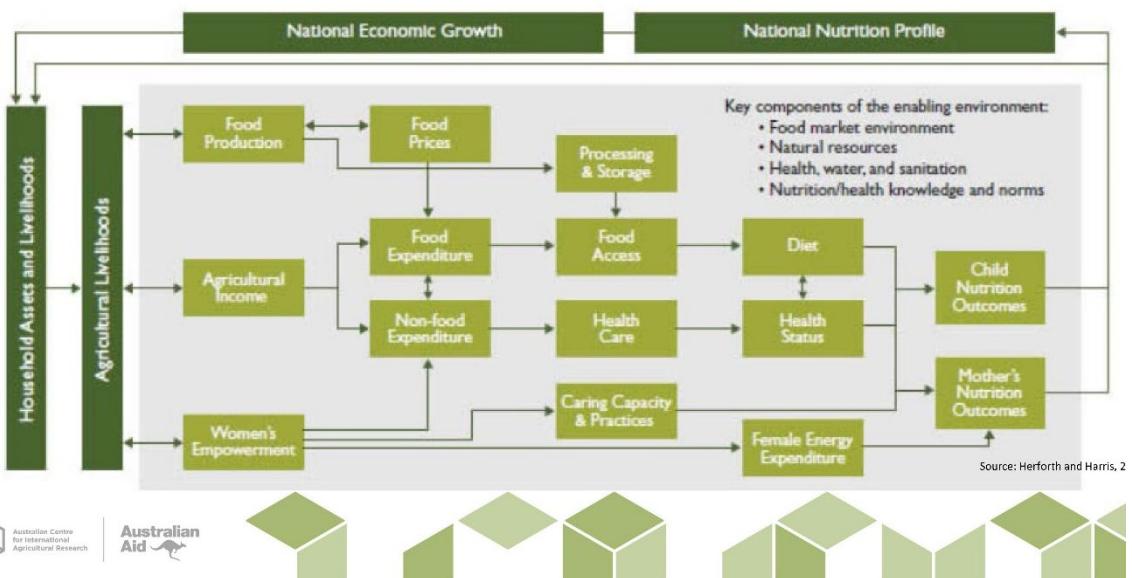


Figure 2. Conceptual framework for agriculture and nutrition.

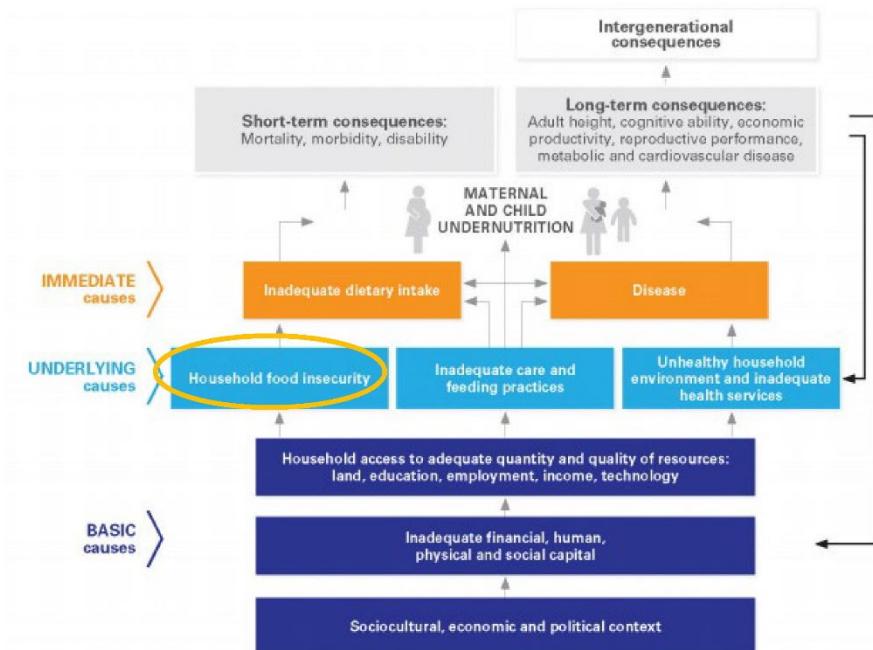
Source: Herforth & Harris 2014.

In the past, global efforts to improve nutrition have focused on pastes, pills, powders, fortification and therapeutic foods, and these all have their place. What was missing was a food-based approach that put nutritionally rich foods and dietary diversity at the focus of program design. This is where Nutrition-sensitive agriculture (Figure 4) comes in.

Nutrition-sensitive agriculture

Nutrition-sensitive agriculture has the overall objective of enabling food systems to function more effectively to produce good nutritional outcomes. However, being a relatively new concept, this approach doesn't yet have a strong evidence-base. Various meta-reviews have found little impact of agriculture on nutrition, but not because agriculture cannot improve nutrition. Those reviews give various explanations as to why that evidence is missing.

For example, impact pathways were often insufficiently articulated, and studies tended to have weak design, and often lacked a whole-of-diet perspective and had made a poor choice of indicators. For a long time we were targeting women and children as they are some of the most nutritionally vulnerable populations. In reality, we need to take a more holistic approach to social inclusion and equity, because all marginalised people are likely to be less food- and



The black arrows show that the consequences of undernutrition can feed back to the underlying and basic causes of undernutrition, perpetuating the cycle of undernutrition, poverty and inequities. Source: UNICEF, 2015

Figure 3. 'Nutrition-sensitive' approaches address the underlying determinants of malnutrition. *Adapted from UNICEF Conceptual framework, Wali et al. 2019.*

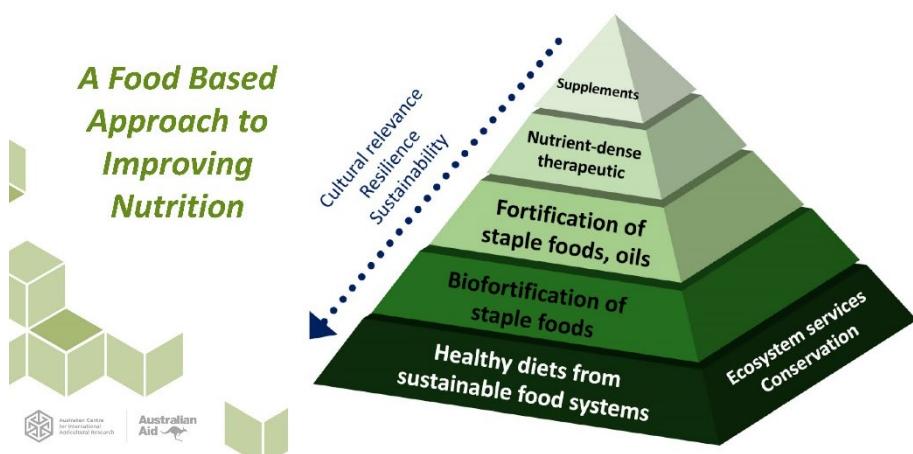


Figure 4. Nutrition-sensitive agriculture (NSA). Raneri (unpublished).

nutrition-secure. These include indigenous people, and people with diverse sexual orientation, gender identity, gender expression, sex characteristics and physical abilities. Yet most of the tools we have for measuring and improving nutrition have been designed and validated with women and children in mind.

So not only do we not have data or evidence on nutrition for those other vulnerable populations, but also we don't have validated tools or indicators to use to gather such data. There is a critical gap here, and a main contributor to the evidence gap has been the poor choice of indicator.

How we measure nutrition in Nutrition-sensitive agriculture

A growing body of research shows that the consumption of sufficient nutrient-rich foods is associated with lower rates of stunting in children. In many cases, when people think about nutrition, they think about these types of nutrition-status indicators: stunting, wasting, obesity and micronutrient deficiencies (Figure 5). However, these are high-level nutrition outcomes.

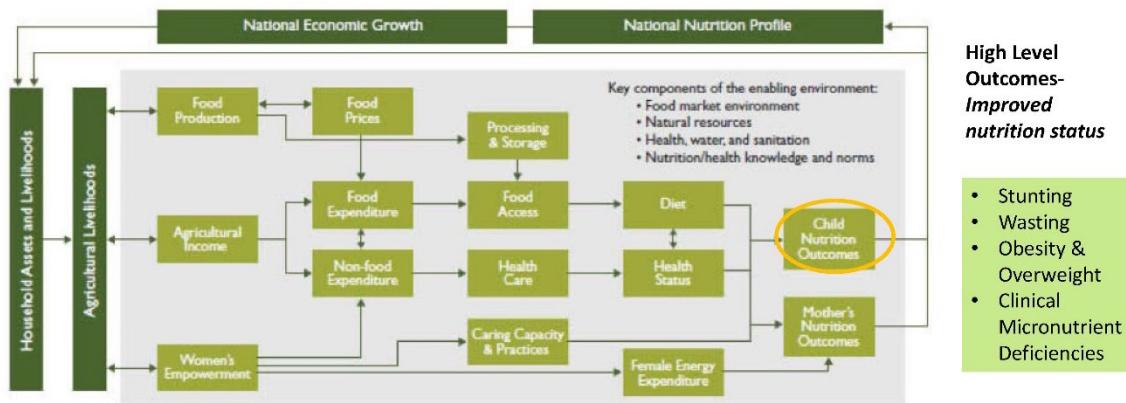


Figure 5. Nutrition outcome indicators. *Source: Adapted from Herforth and Harris 2014.*

They are complex and have multiple drivers such as poverty, health, education, and WASH (water, sanitation and hygiene). They can be extremely difficult to change, especially within an agriculture project that lasts for only a few years. There is even a discussion on whether stunting should even be considered as an indicator of nutrition or rather as a more generalised indicator of development.

Focusing on diet quality makes sense for agriculture projects (Figure 6). Agriculture produces the food we consume in our everyday diets. One in five deaths are associated with poor diet quality, and those suboptimal diets are characterised by a lack of whole grains, fruit, vegetables, nuts, seeds, milk and legumes, and these are foods that agriculture R&D projects can target, across the food system. You cannot have good nutrition status without first having a good quality diet.

There are two main impact pathways that are often considered, or stated, in agriculture projects aiming to improve nutrition: direct consumption pathway, and income pathway.

Often, production for direct consumption is assumed to be the most direct and easiest pathway: grow more, have more food available, eat more (Figure 6). It seems easy, but is not always easy, and especially not if it's assumed it will happen automatically. For example, in many cases, nutritious foods have a higher market value, and so households will choose simply to sell these foods instead of eating them.



Figure 6. Agriculture for direct consumption pathway. Raneri (unpublished).

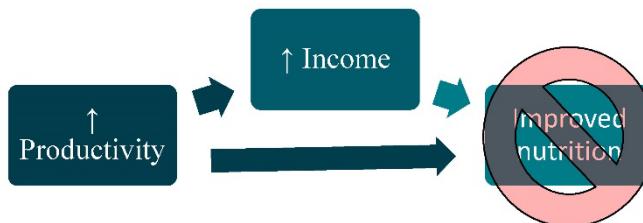


Figure 7. Agriculture for more income pathway. Raneri (unpublished).

It's a similar story with the income pathway (Figure 7): increased productivity leads to more income, and with that income they will buy more and better quality foods, leading to better nutrition. However, increasing income alone is also often insufficient to achieve nutrition impacts, and this has been observed in many developing countries where child malnutrition has increased despite reductions in poverty and increases in GDP. At household level, we see the income being spent on more of the same foods (such as staples) or on non-food items, and so the diet quality doesn't improve. Sometimes the income is spent on more desired but less healthy foods such as ultra-processed foods including instant noodles, and the diet quality actually deteriorates.

The lack of impact could also be a result of insufficient targeting. For example, income-generating activities often target men. However, we know that when such activities target and empower women they are more likely to result in the larger income being spent on acquiring better quality foods for the household.

What this all tells us is that we need to create incentives for households (Figure 8): incentives to eat what they produce, and also to allocate income on inputs to good nutrition (like food, or seedlings of nutritious foods to grow).

Incentives for households to invest in nutrition

Nutrition Education & Behaviour Change

Increase **consumer demand** for better diets

Create the **enabling environment** to act



Australian Centre for International Agricultural Research Australian Aid

Figure 8. Photos: JE Raneri.

This is where nutrition education comes into play. Often, we think about nutrition education targeting women and telling them about food groups and micronutrients. We need to instil in both men and women the value of a costlier but more nutritious diet. If women aren't empowered to make decisions in their household and men don't value and understand the value of nutritious foods, then that knowledge cannot be utilised.

But we also need to improve the food environment. You can have all the knowledge about good nutrition, and even the income to spend on it, but if you only have the same two vegetables available at your local market or even no local market at all, and you are not able to buy seeds to diversify your home garden, then that knowledge is wasted.

At a minimum, projects should aim to do no harm (Figure 9). No single food or nutrient is a silver bullet, and sometimes focusing on just one can result in imbalances in the diet. We cannot assume that promoting a single food will lead to it being added to people's normal diet. Often, substitution occurs. For example, your project might be successful in leading

At a minimum – DO NO HARM

Single food or nutrient ≠ silver bullet

Has the food produced actually been consumed?

How has the income been used?

Women's Time burden



Figure 9. Photo: JE Raneri.

households to eat more pak choy, but if they are substituting that for aikiba there may be no positive impact on the diet. And if you only measure pak choy consumption, you won't have the full picture.

To make meaningful contributions to food and nutrition security, it's time to move beyond what are too often the end goals of agriculture projects: yield and income.

We know that smallholder farmers too often don't eat what they produce. They don't use profits to buy better foods, and they don't end up improving their diets. How can we as researchers, create the right incentives for households to change this (Figure 10)?



Figure 10. Photo: JE Raneri.

We need to simultaneously improve food environments while also improving capacity and knowledge on nutrition.

- The first step is building stakeholder understanding on the importance of taking a nutrition-sensitive approach and acknowledging that improving incomes alone will not solve malnutrition. So that's, hopefully, what we've done today.
- The second is to incorporate specific nutrition goals and action during project planning. Hopefully, you'll do that tomorrow.
- And finally, do yourselves a favour and get a nutritionist involved in your projects if you want to improve nutrition.

References

Herforth A., Harris J. 2014. *Understanding and Applying Primary Pathways and Principles. Brief #1. Improving Nutrition through Agriculture Technical Brief Series*. Arlington, VA: USAID/Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project.

HLPE 2020. *Food security and nutrition: building a global narrative towards 2030*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

Wali N., Agho K., Renzaho A.M.N. 2019. Past drivers of and priorities for child undernutrition in South Asia: a mixed methods systematic review protocol. *Systematic Reviews* 8, article number 189.

Jessica Evelyn Raneri is currently Senior Nutrition Sensitive Agriculture Adviser to both The Australian Centre for International Agriculture Research (ACIAR) and to the Australian Department of Foreign Affairs and Trade (DFAT). She spent a decade working at Bioversity International as a nutrition researcher, leading research projects and programmes related to agrobiodiversity, sustainable diets, nutrition and systems research work mostly focused on sustainable local food systems, highlighting the role of local foods and agrobiodiversity for improving diet quality. Jessica's work is now focused on guiding research and development investments aiming to improve nutrition and health outcomes of agriculture and food system initiatives, both by supporting research design and implementation, and by providing evidence-based policy and programming recommendations for more resilient and sustainable food systems. Jessica is passionate about food and nutrition security data, including novel indicator development and testing, as well as supporting common indicator use to support global monitoring. She is a strong proponent and practitioner of participatory action research, whole-of-diet approaches, evidence-based policy and effective communication as key components of improved global public health and development. Jessica is passionate about school food environments. In a world where diets are rapidly degrading to be less diverse, healthy and nutritious, and youth are less engaged in agriculture – working with teachers, children and their families provides an opportunity to actively engage and nudge dietary choices, preferences and behaviours towards being more healthy and sustainable, whilst also supporting local rural agriculture-based livelihoods, and supporting local food systems. She is an executive team member for the Pacific School Food Network, and is interested in innovative solutions that both support smallholder farmers and improve the quality of school food environments. Jessica has worked in agriculture development in South America, sub-Saharan Africa, South Asia, South East Asia, and the Pacific. She is currently completing her PhD in Bio-Science Engineering (Food and Nutrition) with the University of Ghent, Belgium.